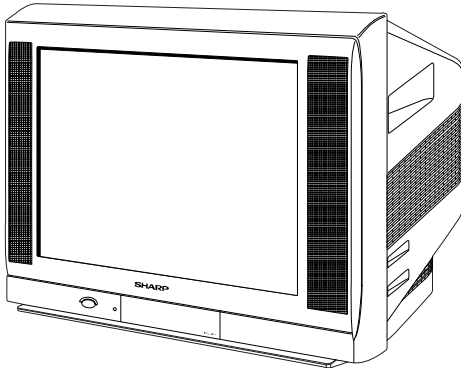


# SHARP SERVICE MANUAL



## COLOR TELEVISION

Chassis No. GA-2

## MODELS

# 20F630 CU20F630

In the interests of user-safety (Required by safety regulations in some countries ) the set should be restored to its original condition and only parts identical to those specified should be used.

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## ELECTRICAL SPECIFICATIONS

POWER INPUT .....	AC 120 V, 60 Hz
POWER RATING .....	90W
PICTURE SIZE .....	1,239 cm <sup>2</sup> (192sq inch)
CONVERGENCE .....	Magnetic
SWEEP DEFLECTION .....	Magnetic
FOCUS .....	Uni-Bi
INTERMEDIATE FREQUENCIES	
Picture IF Carrier Frequency .....	45.75 MHz
Sound IF Carrier Frequency .....	41.25 MHz
Color Sub-Carrier Frequency .....	42.17 MHz
	(Nominal)
AUDIO POWER	
OUTPUT RATING .....	2.5 W(RMS) x 2pcs

SPEAKER	
SIZE .....	5 x 12 cm, 2pcs
VOICE COIL IMPEDANCE .....	16 ohm at 400 Hz
ANTENNA INPUT IMPEDANCE	
VHF/UHF .....	75 ohm Unbalanced
TUNING RANGES	
VHF-Channels .....	2 thru 13
UHF-Channels .....	14 thru 69
CATV Channels .....	1 thru 125
	(EIA, Channel Plan U.S.A.)

**Specifications are subject to change without prior notice.**

## SHARP CORPORATION

This document has been published to be used for after sales service only.  
The contents are subject to change without notice.

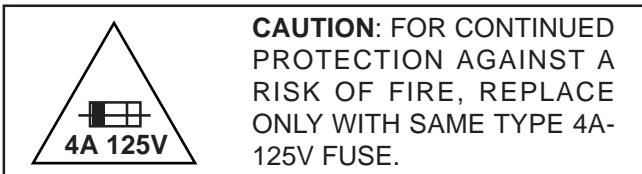
## IMPORTANT SERVICE SAFETY PRECAUTION

■ Service work should be performed only by qualified service technicians who are thoroughly familiar with all safety checks and the servicing guidelines which follow:

### WARNING

1. For continued safety, no modification of any circuit should be attempted.
2. Disconnect AC power before servicing.
3. Semiconductor heat sinks are potential shock hazards when the chassis is operating.
4. The chassis in this receiver has two ground systems which are separated by insulating material. The non-isolated (hot) ground system is for the B+ voltage regulator circuit and the horizontal output circuit. The isolated ground system is for the low B+ DC voltages and the secondary circuit of the high voltage transformer.

To prevent electrical shock use an isolation transformer between the line cord and power receptacle, when servicing this chassis.



### SERVICING OF HIGH VOLTAGE SYSTEM AND PICTURE TUBE

**When servicing the high voltage system, remove the static charge by connecting a 10k ohm resistor in series with an insulated wire (such as a test probe) between the picture tube ground and the anode lead. (AC line cord should be disconnected from AC outlet.)**

1. Picture tube in this receiver employs integral implosion protection.
2. Replace with tube of the same type number for continued safety.
3. Do not lift picture tube by the neck.
4. Handle the picture tube only when wearing shatterproof goggles and after discharging the high voltage anode completely.

### X-RADIATION AND HIGH VOLTAGE LIMITS

1. Be sure all service personnel are aware of the procedures and instructions covering X-radiation. The only potential source of X-ray in current solid state TV receivers is the picture tube. However, the picture tube does not emit measurable X-Ray radiation, if the high voltage is as specified in the "High Voltage Check" instructions.

It is only when high voltage is excessive that X-radiation is capable of penetrating the shell of the picture tube including the lead in the glass material. The important precaution is to keep the high voltage below the maximum level specified.

2. It is essential that servicemen have available at all times an accurate high voltage meter. The calibration of this meter should be checked periodically.
3. High voltage should always be kept at the rated value –no higher. Operation at higher voltages may cause a failure of the picture tube or high voltage circuitry and;also, under certain conditions, may produce radiation in exceeding of desirable levels.
4. When the high voltage regulator is operating properly there is no possibility of an X-radiation problem. Every time a color chassis is serviced, the brightness should be tested while monitoring the high voltage with a meter to be certain that the high voltage does not exceed the specified value and that it is regulating correctly.
5. Do not use a picture tube other than that specified or make unrecommended circuit modifications to the high voltage circuitry.
6. When trouble shooting and taking test measurements on a receiver with excessive high voltage, avoid being unnecessarily close to the receiver. Do not operate the receiver longer than is necessary to locate the cause of excessive voltage.

# IMPORTANT SERVICE SAFETY PRECAUTION

## (Continued)

### BEFORE RETURNING THE RECEIVER

#### (Fire & Shock Hazard)

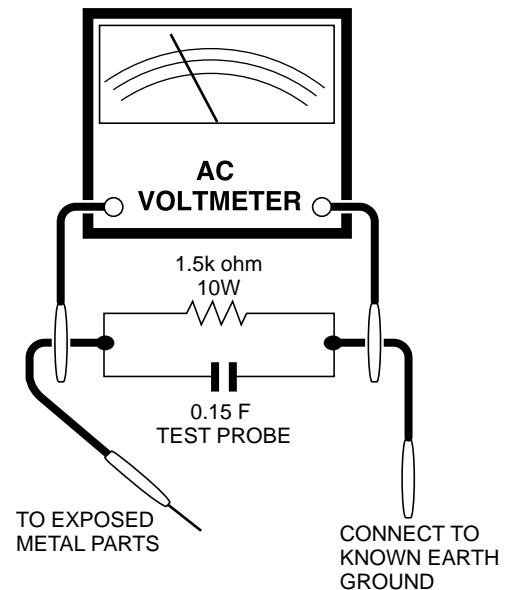
Before returning the receiver to the user, perform the following safety checks.

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the receiver.
2. Inspect all protective devices such as non-metallic control knobs, insulating materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators, etc.
3. To be sure that no shock hazard exists, check for leakage current in the following manner.
  - Plug the AC cord directly into a 120 volt AC outlet, (Do not use an isolation transformer for this test).
  - Using two clip leads, connect a 1.5k ohm, 10 watt resistor paralleled by a 0.15 $\mu$ F capacitor in series with all exposed metal cabinet parts and a known earth ground, such as electrical conduit or electrical ground connected to earth ground.
  - Use an AC voltmeter having with 5000 ohm per volt, or higher, sensitivity to measure the AC voltage drop across the resistor.

- Connect the resistor connection to all exposed metal parts having a return to the chassis (antenna, metal cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor.

All checks must be repeated with the AC line cord plug connection reversed. (If necessary, a non-polarized adapter plug must be used only for the purpose of completing these check.)

Any current measured must not exceed 0.5 milliamp. Any measurements not within the limits outlined above indicate of a potential shock hazard and corrective action must be taken before returning the instrument to the customer.



### SAFETY NOTICE

Many electrical and mechanical parts in television receivers have special safety-related characteristics. These characteristics are often not evident from visual inspection, nor can protection afforded by them be necessarily increased by using replacement components rated for higher voltage, wattage, etc.

Replacement parts which have these special safety characteristics are identified in this manual; electrical components having such features are identified by "⚠" and shaded areas in the Replacement Parts Lists and Schematic Diagrams.

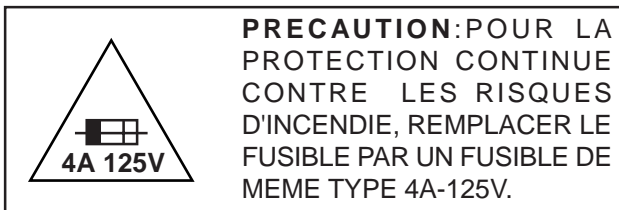
For continued protection, replacement parts must be identical to those used in the original circuit. The use of substitute replacement parts which do not have the same safety characteristics as the factory recommended replacement parts shown in this service manual, may create shock, fire, X-radiation or other hazards.

# PRECAUTIONS A PRENDRE LORS DE LA REPARATION

■ **Ne peut effectuer la réparation qu' un technicien spécialisé qui s'est parfaitement accoutumé à toute vérification de sécurité et aux conseils suivants.**

## AVERTISSEMENT

1. N'entreprendre aucune modification de tout circuit. C'est dangereux.
2. Débrancher le récepteur avant toute réparation.
3. Les déversoirs thermiques à semi-conducteurs peuvent présenter un danger de choc électrique lorsque le récepteur est en marche.
4. Le châssis de ce récepteur a deux systèmes de mise à la terre qui sont séparés par un matériau isolant. Le système de mise à la terre non-isolée (chaud) est pour le circuit du régulateur de tension B+ et le circuit de sortie horizontale. Le système de mise à la terre isolé est pour les basses tensions C. C. B+ et le circuit secondaire du transformateur de haute tension.



## REPARATION DU SYSTEME A HAUTE TENSION ET DU TUBE-IMAGE

**Lors de la réparation de ce système, supprimer la charge statique en branchant une résistance de 10 k en série avec un fil isolé (comme une sonde d'essai) entre la mise à la terre du tube-image et le fil d'anode. (Le cordon d'alimentation doit être retiré de la prise murale.)**

1. Il est à noter que le tube-image de ce récepteur est intégralement protégé contre l'implosion.
2. Par mesure de sécurité, changer le tube-image pour un tube du même numéro de type.
3. Ne pas lever le tube-image par son col.
4. Ne manipuler le tube-image qu'en portant des lunettes incassables et qu'après avoir déchargé totalement la haute tension.

## LIMITES DES RADIATIONS X ET DE LA HAUTE TENSION

1. Tout le personnel réparateur doit être instruit des instructions et procédés relatifs aux radiations X. Le tube-image, seule source de rayons X dans les téléviseurs transistorisés, n'émet pourtant pas de rayons mesurables si la haute tension est maintenue à un niveau préconisé dans la section "Vérification de la haute tension". C'est seulement quand la haute tension est excessive que les rayons X peuvent entrer dans l'enveloppe du tube-image y compris le conducteur de verre. Il est important de maintenir la haute tension en-dessous du niveau spécifié.
2. Il est essentiel que le réparateur ait sous la main un voltmètre à haute tension qui doit être périodiquement étalonné.
3. La haute tension doit toujours être maintenue à la valeur de régime et pas plus haute. L'opération à des tensions plus élevées peut entraîner une panne du tube-image ou du circuit à haute tension et, dans certaines conditions, peut entraîner une radiation dépassant les niveaux prescrits.
4. Quand le régulateur à haute tension fonctionne correctement, il n'y a aucun problème de radiation X. Chaque fois qu'un châssis couleurs est réparé, la luminosité doit être examinée tout en contrôlant la haute tension à l'aide d'un voltmètre pour s'assurer que la haute tension ne dépasse pas la valeur spécifiée et qu'elle soit correctement réglée.
5. Ne pas utiliser un tube-image autre que celui spécifié et ne pas effectuer de modifications déconseillées du circuit à haute tension.
6. Lors de la recherche des pannes et des mesures d'essai sur un récepteur qui présente une haute tension excessive, éviter de s'approcher inutilement du récepteur. Ne pas faire fonctionner le récepteur plus longtemps que nécessaire pour localiser la cause de la tension excessive.

# PRECAUTIONS A PRENDRE LORS DE LA REPARATION

## (Suite)

### VERIFICATIONS CONTRE L'INCEN-DIE ET LE CHOC ELECTRIQUE

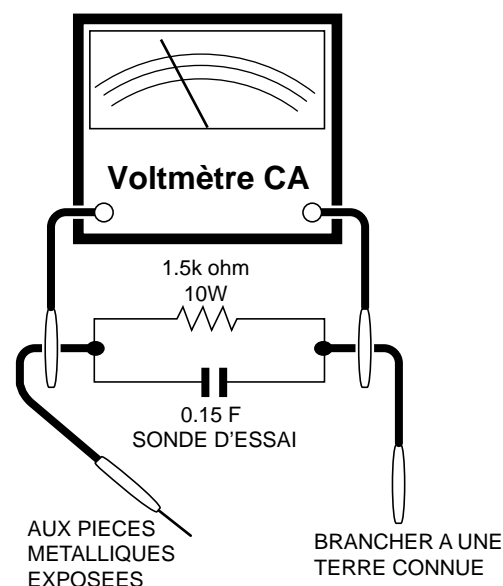
**Avant de rendre le récepteur à l'utilisateur, effectuer les vérifications suivantes.**

1. Inspecter tous les faisceaux de câbles pour s'assurer que les fils ne soient pas pincés ou qu'un outil ne soit pas placé entre le châssis et les autres pièces métalliques du récepteur.
2. Inspecter tous les dispositifs de protection comme les boutons de commande non-métalliques, les isolants, le dos du coffret, les couvercles ou blindages de réglage et de compartiment, les réseaux de résistance-capacité, les isolateurs mécaniques, etc.
3. S'assurer qu'il n'y ait pas de danger d'électrocution en vérifiant la fuite de courant, de la façon suivante:
  - Brancher le cordon d'alimentation directement à une prise de courant de 120V. (Ne pas utiliser de transformateur d'isolation pour cet essai).
  - A l'aide de deux fils à pinces, brancher une résistance de 1,5 k 10 watts en parallèle avec un condensateur de 0,15µF en série avec toutes les pièces métalliques exposées du coffret et une terre connue comme une conduite électrique ou une prise de terre branchée à la terre.
  - Utiliser un voltmètre CA d'une sensibilité d'au moins 5000 /V pour mesurer la chute de tension en travers de la résistance.

- Toucher avec la sonde d'essai les pièces métalliques exposées qui présentent une voie de retour au châssis (antenne, coffret métallique, tête des vis, arbres de commande et des boutons, écusson, etc.) et mesurer la chute de tension CA en-travers de la résistance.

Toutes les vérifications doivent être refaites après avoir inversé la fiche du cordon d'alimentation. (Si nécessaire, une prise d'adpatation non polarisée peut être utilisée dans le but de terminer ces vérifications.) Tous les courants mesurés ne doivent pas dépasser 0,5 mA.

Dans le cas contraire, il y a une possibilité de choc électrique qui doit être supprimée avant de rendre le récepteur au client.



### AVIS POUR LA SECURITE

De nombreuses pièces, électriques et mécaniques, dans les téléviseurs présentent des caractéristiques spéciales relatives à la sécurité, qui ne sont souvent pas évidentes à vue. Le degré de protection ne peut pas être nécessairement augmentée en utilisant des pièces de remplacement étalonnées pour haute tension, puissance, etc.

Les pièces de remplacement qui présentent ces caractéristiques sont identifiées dans ce manuel; les pièces électriques qui présentent ces particularités sont

identifiées par la marque " ⚠ " et hachurées dans la liste des pièces de remplacement et les diagrammes schématiques.

Pour assurer la protection, ces pièces doivent être identiques à celles utilisées dans le circuit d'origine. L'utilisation de pièces qui n'ont pas les mêmes caractéristiques que les pièces recommandées par l'usine, indiquées dans ce manuel, peut provoquer des électrocutions, incendies, radiations X ou autres accidents.

# LOCATION OF USER'S CONTROL

## Front Panel

### POWER

Press → On.  
Press again → Off.

### SENSOR AREA FOR REMOTE CONTROL

### MENU

Press → Accesses MAIN MENU.  
Press again → Exits MAIN MENU.

### VOLUME UP/DOWN

(+) Increases sound.  
(-) Decreases sound.

VIDEO IN 2 L-AUDIO-R

(INSIDE DOOR)

### CHANNEL UP/DOWN

(▲) Selects next higher channel.  
(▼) Selects next lower channel.

## Basic Remote Control Functions

### POWER

Press → On.  
Press again → Off.

### REMOTE KEYPAD

Accesses any channel from keypad.

### FLASHBACK

Returns to previous channel.

### PERSONAL PREFERENCE

With the Personal Preference buttons, you can program your favorite programs by using the 4 categories A, B, C and D. The channels can be accessed quickly by using these buttons.

### VOLUME UP/DOWN

(+) Increases sound.  
(-) Decreases sound.

- In menu mode, changes or selects the TV adjustments.

### MENU

Press → Accesses MAIN MENU.  
Press again → Exits MAIN MENU.

### MUTE

Press → Mutes sound.  
Press again → Restores sound.  
• CLOSED CAPTION appears when sound is muted.

### POWER (DVD/VCR)

Press → On.  
Press again → Off.

### DVD/VCR CONTROL

### REC

Infrared Transmitter Window

### CATV/DVD-TV/VCR MODE buttons

Press TV/VCR, sends power and channel select commands (Channel up/down and Random Access buttons) to the TV and VCR control.  
Press CATV/DVD, sends power and channel select commands to a cable TV converter and DVD control.

### DISPLAY

Press → Displays receiving channel for four seconds.  
Press again → Removes display.  
• Temporarily displays receiving channel when in Closed Caption mode.

### INPUT

Press → Switch to external video INPUT 1 mode or COMPONENT mode.  
Press 2 times → Switch to external video INPUT 2 mode.  
Press 3 times → Switch back to the original TV mode.

### ENTER

Used in some instances where a Cable Converter Box requires an enter command after selecting channels, when using the REMOTE KEYPAD button.

### CHANNEL UP/DOWN

(▲) Selects next higher channel.  
(▼) Selects next lower channel.

- Moves the "●" mark of the MENU screens.

### SKIP/VCR-CH

### Note:

- The above shaded buttons on the Remote Control glow in the dark. To use the glow-in-the-dark display on the remote control, place it under a fluorescent light or other lighting.
- The phosphorescent material contains no radioactive or toxic material, so it is safe to use.
- The degree of illumination will vary depending on the strength of lighting used.
- The degree of illumination will decrease with time and depending on the temperature.
- The time needed to charge the phosphorescent display will vary depending on the surrounding lighting.
- Sunlight and fluorescent lighting are the most effective when charging the display.



# INSTALLATION AND SERVICE INSTRUCTIONS

- Note:** (1) When performing any adjustments to resistor controls and transformers use non-metallic screwdrivers or TV alignment tools.  
(2) Before performing adjustments, the TV set must be on at least 15 minutes.

## CIRCUIT PROTECTION

The receiver is protected by a 4.0A fuse (F701), mounted on PWB-A, wired into one side of the AC line input.

## X-RADIATION PROTECTOR CIRCUIT TEST

After service has been performed on the horizontal deflection system, high voltage system, B+ system, test the X-Radiation protection circuit to ascertain proper operation as follows:

1. Apply 120V AC using a variac transformer for accurate input voltage.
2. Allow for warm up and adjust all customer controls for normal picture and sound.
3. Receive a good local channel.
4. Connect a digital voltmeter to P603 Pin3 and make sure that the voltmeter reads  $18.9 \pm 1.1V$ .
5. Apply external 24.5V DC at P603 Pin3 by using an external DC supply, TV must be shut off.
6. To reset the protector, unplug the AC cord at least 4 second before plugging in again. Now make sure that normal picture appears on the screen.
7. If the operation of the horizontal oscillator does not stop in step 5, the circuit must be repaired before the set is returned to the customer.

## HIGH VOLTAGE CHECK

High voltage is not adjustable but must be checked to verify that the receiver is operating within safe and efficient design limitations as specified checks should be as follows:

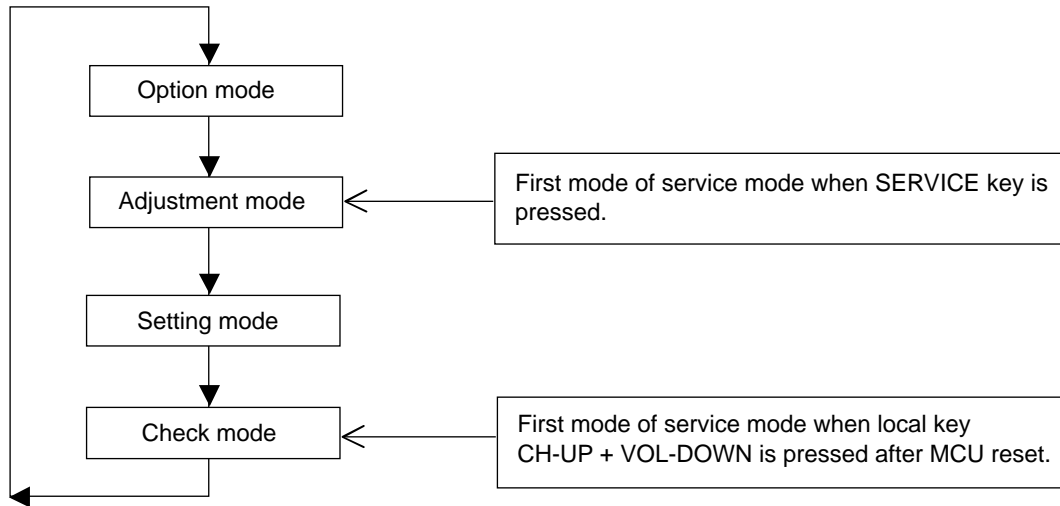
1. Connect an accurate high voltage meter between ground and anode of picture tube.
2. Operate receiver for at least 15 minutes at 120V AC line voltage, with a strong air signal or a properly tuned in test signal.
3. Enter the service mode and set Y-mute ON by using Service R/C.
4. The voltage should be approximately 28.6kV (at zero beam).

If a correct reading cannot be obtained, check circuitry for malfunctioning components. After the voltage test, make Y-mute off to the normal mode.

# SERVICE MODE

## Service Mode Overview

1. Service mode is entered by SERVICE key input or CH-UP +VOL-DOWN input during reset.
2. Service mode is cleared by entering SERVICE key or CH-UP +VOL-DOWN key command during service mode.
3. If key input port (SERVICE) input is LOW, then it is in service mode.
4. During key input port (SERVICE) input is LOW, clearing service mode by key input SERVICE or CH-UP + VOL-DOWN is disabled.
5. Service mode can be switched to 4 modes as follows by key input MENU;



6. AFT processing is disabled during service mode. PLL setting data is set to fo data.
7. All user data are set to default during service mode. FAO and SPEAKER user settings are off and on respectively in service mode. Energy Save is off.
8. Sleep timer, View timer and Off timer are inactivated in Service mode.
9. Sound is muting in service mode except at Adjustment Items V20, M01, M02, M03, M04, M05, and M06.



**Adjustment Mode Items**

No.	Item Name	IC	Register	Range	Default
V01	SUB-PICTURE	1 Chip	CONTRAST	0~127	127
V02	SUB-TINT	1 Chip	TINT	0~127	64
V03	SUB-COLOR	1 Chip	COLOR	0~127	64
V04	SUB-BRIGHT	1 Chip	BRIGHT	0~255	128
V05	SUB-SHARP	1 Chip	VIDEO-TONE	0~63	32
V06	V-SHIFT	1 Chip	V-SHIFT	0~7	4
V07	H-SHIFT	1 Chip	H-PHASE	0~31	16
V08	RF-AGC	1 Chip	RF-Delay	0~127	127
V09	V-SIZE	1 Chip	V-SIZE	0~63	32
V10	PIF-VCO	1 Chip	VIF-VCO	0~63	32
V11	R-CUTOFF	1 Chip	R-CUTOFF	0~255	127
V12	G-CUTOFF	1 Chip	G-CUTOFF	0~255	127
V13	B-CUTOFF	1 Chip	B-CUTOFF	0~255	127
V14	R-DRIVE	1 Chip	R-DRIVE	0~127	64
V15	B-DRIVE	1 Chip	B-DRIVE	0~127	64
V16	SUB-COLOR(YUV)	1 Chip	COLOR	0~127	64
V17	SUB-TINT(YUV)	1 Chip	BASEBAND-TINT	0~127	64
V18	CC-POS	Micron		0~255	32
V19	(Vertical mode)	1 Chip	V-MUTE,SERVICE	0, 1, 2	0
V20	SUB-VOL	1 Chip	A-ATT	0~127	127
V21	H-VCO	1 Chip	H-VCO	0~7	4
M01	MTS-ATT	MTS	ATT	0~15	10
M02	MTS-VCO	MTS	VCO	0~63	32
M03	MTS-FILTER	MTS	FILTER	0~63	28
M04	MTS-WIDEBAND	MTS	WIDEBAND	0~63	27
M05	MTS-SPECTRAL	MTS	SPECTRAL	0~63	32
M06	SUB-VOL	MTS	VOL	0~63	63

## ■ SELF ADJUSTMENT

### H-VCO

1. When there is H-VCO self-adjustment key input for adjustment item H-VCO, self-adjustment is performed.
2. H-FREE(1chip) is set to 1.
3. H-OUT is set by intelligent monitor output.
4. IM input is set as TIM input.
5. H-VCO(1chip) data is changed so that the number of input pulse is 125 inside 8ms interval.
6. When adjustment completed, OSD display and H-VCO self-adjustment status data of EEPROM are updated.
7. H-FREE(1chip), intelligent monitor output and IM input mode are recovered.

### RF-AGC

1. When there is RF-AGC self-adjustment key input for adjustment item RF-AGC, self-adjustment is performed.
2. AGC-OUT is set by intelligent monitor output.
3. IM input is set as AD input.
4. By decreasing RF-AGC (1chip) data from current RF-AGC adjustment value to 0, AFT input voltage becomes the maximum setting value.
5. Increase RF-AGC(1chip) data, when AFT input voltage is at (max. 0.3V) point, adjustment is completed.
6. When adjustment completed, OSD display and RF-AGC self-adjustment status data of EEPROM are updated.
7. Intelligent monitor output and IM input mode are recovered.

### PIF-VCO

1. When there is PIF-VCO self-adjustment key input for adjustment item PIF-VCO, self-adjustment is performed.
2. VIF-DEF(1chip) is set to 1.
3. AFC is set by intelligent monitor output.
4. IM input is set as AD input.
5. VIF-VCO(1chip) data is changed so that input voltage becomes 2.5V.
6. When adjustment completed, OSD display and PIF-VCO self-adjustment status data of EEPROM are updated.
7. VIF-DEF(1chip), intelligent monitor output and IM input mode are recovered.

### MTS-FILTER

**Adjustment is performed in the center of the range when FILTER status is OK.**

1. If data is changed from 0 to 63, point where NG → OK is A and point where OK → NG is B.
2. If data is changed from 63 to 0, point where NG → OK is C and point where OK → NG is D.
3.  $(A+B+C+D)/4$  is the adjustment point.

## Setting Mode Items

No.	Item Name	IC	Register	Range	Default
F01	VideoTone-Gain (TV)	1chip	V-TONE	0 / 1	0
F02	VideoTone-Gain (AV)	1chip	V-TONE	0 / 1	0
F03	VideoTone-Gain(YUV)	1chip	V-TONE	0 / 1	0
F04	ABCL	1chip	ABCL	0 / 1	0
F05	BS	1chip	BS-OFF	0 / 1	0
F06	ABCL-G	1chip	ABCL-G	0 / 1	0
F07	SHP-AV	OFFSET	VIDEO-TONE(OFFSET)	-16~+16	0
F08	SHP-YUV	OFFSET	VIDEO-TONE(OFFSET)	-16~+16	0
F09	RGB-CLIP	1chip	ExtRGB-Clip	0 / 1	0
F10	E-SAVE	OFFSET	CONTRAST(OFFSET)	0~63	30
F11	FAO-VOL	1chip	A-ATT	0~127	120
F12	PIF-G	1chip	VIF-GAIN	0~7	4
F13	Y-DELAY(TV)	1chip	Y-Delay	0~7	0
F14	Y-DELAY(AV)	1chip	Y-Delay	0~7	0
F15	Y-DELAY(YUV)	1chip	Y-Delay	0~7	0
F16	TINT-AV	OFFSET	TINT(OFFSET)	-32~+32	0
F17	COL-AV	OFFSET	COLOR(OFFSET)	-32~+32	0
F18	R-DRI(R2)	OFFSET	R-DRI(OFFSET)	-32~+32	0
F19	R-DRI(R)	OFFSET	R-DRI(OFFSET)	-32~+32	0
F20	R-DRI(B)	OFFSET	R-DRI(OFFSET)	-32 ~+32	0
F21	B-DRI(R2)	OFFSET	B-DRI(OFFSET)	-32~+32	0
F22	B-DRI(R)	OFFSET	B-DRI(OFFSET)	-32~+32	0
F23	B-DRI(B)	OFFSET	B-DRI(OFFSET)	-32~+32	0
F24	V-FREE	1chip	V-FREE	0 / 1	0
F25	GAMMA	1chip	GAMMA	0~3	0
F26	TRAP(TV)	1chip	TRAP-FINE	0~3	2
F27	TRAP(AV)	1chip	TRAP-FINE	0~3	2
F28	H-FREE	1chip	H-FREE	0 / 1	0
F29	1W(TV)	1chip	V.Window	0 / 1	0
F30	1W(AV)	1chip	V.Window	0 / 1	0
F31	YLPF	1chip	YSW-LPF	0 / 1	1
F32	BS-D	1chip	BS-DISCHARGE	0~3	0
F33	BS-C	1chip	BS-CHARGE	0~3	0
F34	SL(TV)	1chip	S-SLICE DOWN	0~3	0
F35	SL(AV)	1chip	S-SLICE DOWN	0~3	0
F36	SL(YUV)	1chip	S-SLICE DOWN	0~3	0
F37	AFC2	1chip	AFC2-G	0 / 1	0
F38	VD(TV)	1chip	Vsync-Det	0 / 1	0
F39	VD(AV)	1chip	Vsync-Det	0 / 1	0
F40	AS(TV)	1chip	Auto-Slice	0 / 1	0
F41	AS(AV)	1chip	Auto-Slice	0 / 1	0
F42	AS(YUV)	1chip	Auto-Slice	0 / 1	0
F43	FBP(TV)	1chip	FBP Vth	0 / 1	0
F44	FBP(AV)	1chip	FBP Vth	0 / 1	0
F45	FBP(YUV)	1chip	FBP Vth	0 / 1	0
F46	C.Clip Level	1chip	C.Clip Level	0 / 1	0
F47	PSW	MTS	PSW	0 / 1	0
F48	FAO-VOL	MTS	VOL	0~63	60
F49	CP	PLL	CP	0 / 1	0
F50	CC LEVEL	MICRON			0
F51	OSD POS	MICRON			0
F52	OFFSET-ADJ-COL	1 chip	COLOR	-32~32	0
F53	OFFSET-ADJ-TINT	1 chip	TINT	-32~32	0
F54	OFFSET-ADJ-TINT-YUV	1 chip	BASEBAND-TINT	-32~32	0

## Option Mode Items

No	ITEM	0	1	DEFAULT
O01	DEMO	Without DEMO	With DEMO	1
O02	DOWNLOAD	Without V-CHIP OP	With V-CHIP OP	1
O03	V-CHIP	Without V-CHIP	With V-CHIP	1
O04	SPEAKER	Without SPEAKER	With SPEAKER	1
O05	FAO	Without FAO	With FAO	1
O06	P.PREF	Without P.PREF	With P.PREF	1
O07	UNIV+	Without UNIV+	With INIV+	1
O08	VIEW TIMER	Without VIEW TIMER	With VIEW TIMER	1
O09	EZ-SETUP	EZ-SETUP	AUTO PRESET	1
O10	PON-CH	Without POWER-ON	With POWER-ON	1
O11	FAV-COL	FAV-COL	COL-TEMP	1
O12	COMPONENT	Without COMPONENT	With COMPONENT	1
O13	AV	Without AV	With AV	1
O14	AV2	AV1 system	AV2 system	1
O15	MTS	Without MTS	With MTS	1
O16	TONE-CTRL	Without S-ADJ	With S-ADJ	1
O17	AUTO-OFF	Without AUTO-OFF	With AUTO-OFF	1
O18	INIT-LANG	ENGLISH	SPANISH	1
O19	SETUP-FLAG	NO SETUP	AUTO SETUP	1
O20	FR.AV (Front, Rear AV)	3: Display "FRONT A/V INPUTS" and "REAR A/V INPUTS" in DEMO mode. 2: Display "FRONT A/V INPUTS" only in DEMO mode. 1: Display "REAR A/V INPUTS" only in DEMO mode. 0: No display of above lines in DEMO mode.		3

## Check Mode

Micron mask version, software version and ROM correction function status are displayed in check mode.

# ADJUSTMENT METHOD

**Caution: to get into the service mode, one of the ways is press direct key for service items. the other ways is short the main chassis JA309 and JA402**

There is three stage of Service Mode data

First stage data from V01 ~ M06

to go into second stage of service mode data, press MENU key

Second stage data from F01 ~ F51

to go into third stage of service mode data, press MENU key

Third stage data from 001 ~ 020

Below is the contents of these data

## First Stage

Data	Service Mode	Function	Range	Default Data
V01	SUB-PICTURE	CONTRAST	0~127	127
V02	SUB-TINT	TINT	0~127	64
V03	SUB-COLOR	COLOR	0~127	64
V04	SUB-BRIGHT	BRIGHT	0~255	128
V05	SUB-SHARP	VIDEO-TONE	0~63	32
V06	V-SHIFT	V-SHIFT	0~7	7
V07	H-SHIFT	H-PHASE	0~31	16
V08	RF-AGC	RF-DELAY	0~127	127
V09	V-SIZE	V-SIZE	0~63	32
V10	PIF-VCO	VIF-VCO	0~63	32
V11	R-CUTOFF	R-CUTOFF	0~255	64
V12	G-CUTOFF	G-CUTOFF	0~255	64
V13	B-CUTOFF	B-CUTOFF	0~255	64
V14	R-DRIVE	R-DRIVE	0~127	64
V15	B-DRIVE	B-DRIVE	0~127	64
V16	SUB-COLOR(YUV)	COLOR	0~127	64
V17	SUB-TINT(YUV)	BASEBAND-TINT	0~127	64
V18	CC-POS	CC-POS	0~255	32
V19	SCREEN CUT OFF	CUT OFF	0~2	0
V20	SUB-VOL	A-ATT	0~127	127
V21	H-VCO	H-VCO	0~7	4
M01	MTS-ATT	ATT (MTS)	0~15	10
M02	MTS-VCO	VCO (MTS)	0~63	32
M03	MTS-FILTER	FILTER (MTS)	0~63	28
M04	MTS-WIDEBAND	WIDEBAND (MTS)	0~63	27
M05	MTS-SPECTRAL	SPECTRAL (MTS)	0~63	32
M06	SUB-VOL	VOL (MTS)	0~63	63

Auto Adjustment Item

1. H-VCO (Currently need manual adj)
2. RF-AGC
3. PIF-VCO
4. MTS-FILTER

## Second Stage

Data	Service Mode	Function	Range	Default Data
F01	VIDEO TONE -GAIN (TV)	V-TONE	0/1	0
F02	VIDEO TONE -GAIN (AV)	V-TONE	0/1	0
F03	VIDEO TONE -GAIN(YUV)	V-TONE	0/1	0
F04	ABCL	ABCL	0/1	0
F05	BS	BS-OFF	0/1	0
F06	ABCL-G	ABCL-G	0/1	0
F07	SHP-AV	VIDEO-TONE(OFFSET)	-16~+16	0
F08	SHP-YUV	VIDEO-TONE(OFFSET)	-16~+16	0
F09	SHP-CLIP	EXTRGB-CLIP	0/1	0
F10	E-SAVE	CONTRAST(OFFSET)	0~63	30
F11	FAO-VOL	A-ATT	0~127	120
F12	PIF-G	VIF-GAIN	0~7	4
F13	Y-DELAY(TV)	Y-DELAY	0~7	0
F14	Y-DELAY(AV)	Y-DELAY	0~7	0
F15	Y-DELAY(YUV)	Y-DELAY	0~7	0
F16	TINT-AV	TINT(OFFSET)	-32~+32	0
F17	COL-AV	COLOR(OFFSET)	-32~+32	0
F18	R-DRI(R2)	R-DRI(OFFSET)	-32~+32	0
F19	R-DRI( R)	R-DRI(OFFSET)	-32~+32	0
F20	R-DRI(B)	R-DRI(OFFSET)	-32~+32	0
F21	B-DRI(R2)	B-DRI(OFFSET)	-32~+32	0
F22	B-DRI( R)	B-DRI(OFFSET)	-32~+32	0
F23	B-DRI(B)	B-DRI(OFFSET)	-32~+32	0
F24	V-FREE	V-FREE	0/1	0
F25	GAMMA	GAMMA	0~3	0
F26	TRAP(TV)	TRAP-FINE	0~3	2
F27	TRAP(AV)	TRAP-FINE	0~3	2
F28	H-FREE	H-FREE	0/1	0
F29	1W(TV)	V.WINDOW	0/1	0
F30	1W(AV)	V.WINDOW	0/1	0
F31	YLPF	YSW-LPF	0/1	1
F32	BS-D	BS-DISCHARGE	0~3	0
F33	BS-C	BS-CHARGE	0~3	0
F34	SL(TV)	S-SLICE DOWN	0~3	0
F35	SL(AV)	S-SLICE DOWN	0~3	0
F36	SL(YUV)	S-SLICE DOWN	0~3	0
F37	AFC2	AFC2-G	0/1	0
F38	VD(TV)	VSYNC-DET	0/1	0
F39	VD(AV)	VSYNC-DET	0/1	0
F40	AS(TV)	AUTO-SLICE	0/1	0
F41	AS(AV)	AUTO-SLICE	0/1	0
F42	AS(YUV)	AUTO-SLICE	0/1	0
F43	FBP(TV)	FBP VTH	0/1	0
F44	FBP(AV)	FBP VTH	0/1	0
F45	FBP(YUV)	FBP VTH	0/1	0
F46	C.CLIP LEVEL	C.CLIP LEVEL	0/1	0
F47	PSW	PSW	0/1	0
F48	FAO-VOL	VOL	0~63	60
F49	CP	CHARGE PUMP	0/1	0
F50	CC LEVEL	CC LEVEL	0/1	0
F51	OSD POS	OSD POS	0/1	0
F52	COL OFFSET	(SUR → NOR)	-32~+32	0
F53	TINT OFFSET	(SUR → NOR)	-32~+32	0
F54	TINT-YUV	TINT-YUV(OFFSET)	-32~+32	0

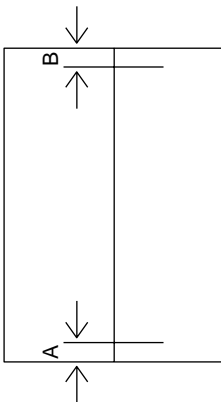


## Third Stage

Data	Service Mode	DATA="0"	DATA="1"	Default Data
001	DEMO	DEMO OFF	ON	1
002	DOWNLOAD	V-CHIP OP OFF	ON	1
003	V-CHIP	V-CHIP OFF	ON	1
004	SPEAKER	SPEAKER OFF	ON	1
005	FAO	FAO OFF	ON	1
006	P.PREF	P.REF OFF	ON	1
007	UNIV+	UNIV+ OFF	ON	1
008	VIEW TIMER	VIEW TIMER OFF	ON	1
009	EZ-SETUP	EZ-SETUP	AUTO PRESET	1
010	PON-CH	POWER-ON OFF	ON	1
011	FAV-COL	FAV-COL	COL-TEMP	1
012	COMPONENT	COMPONENT OFF	ON	1
013	AV	AV OFF	ON	1
014	AV2	AV2 OFF	ON	1
015	MTS	MTS OFF	ON	1
016	TONE-CTRL	S-ADJ OFF	ON	1
017	AUTO-OFF	AUTO-OFF OFF	ON	1
018	INIT-LANG	ENGLISH	SPANISH	1
019	SETUP-FLAG	NO SET UP	AUTO SET UP	1
020	AV-FR	"0"=NO AV "1"=REAR "2"=FRONT "3"=REAR & FRONT		3

ADJUSTMENT ITEM	OPTION SET UP											
ADJUSTMENT POSITION	REFER AS BELOW	STEP RANGE				REFER AS BELOW						
CONTROL		-										
PRE-ADJUST REQUIREMENT		-										
CONTENT		-										
INPUT CONDITION	20F630, CU20F630											
OUTPUT	OSD CHECKING											
ADJUSTMENT PROCEDURE	BUS OPTION FOR THIRD STAGE SERVICE DATA											
	FUNCTION	001 DEMO	002 DOWNLOAD	003 V-CHIP	004 SP	005 FAO	006 PPREF	007 UNIV+	008 VIEW	009 EZ	010 PON-CH	
	20F630	1	1	1	1	1	1	1	1	0	0	
	CU20F630	1	0	0	1	1	1	1	1	0	0	
	DEF	"0"=DISABLE "1"=ENABLE 009 → "0"=EZ-SETUP "1"=AUTO PRESET										
	BUS OPTION FOR THIRD STAGE SERVICE DATA											
FUNCTION	011 FAV-COL	012 COMP	013 AV	014 AV2	015 MTS	016 TONE	017 AUTO	018 LAN	019 SETUP	020 AV-FR		
20F630	1	1	1	1	1	1	0	0	1	3		
CU20F630	1	1	1	1	1	1	0	0	1	3		
DEF	011 → "0"=FAV-COL "1"=COL-TEMP 018 → "0"=ENGLISH "1"=SPANISH 019 → "0"=NO SET UP "1"=AUTO SETUP											

ADJUSTMENT ITEM	OPTION SET UP											
ADJUSTMENT POSITION	REFER AS BELOW	STEP RANGE	REFER AS BELOW									
CONTROL		-										
PRE-ADJUST REQUIREMENT		-										
CONTENT		-										
INPUT CONDITION	20F630, CU20F630											
OUTPUT	OSD CHECKING											
ADJUSTMENT PROCEDURE	DATA SETUP FOR FIRST AND SECOND STAGE SERVICE DATA											
	FUNCTION	V05 SHARP	F13 Y-DL(TV)	F14 Y-DL(AV)	F16 TINT-AV	F17 COL-AV	F30 1W(AV)	F34 SL(TV)	F38 VD(TV)	F40 AS(TV)	F49 CP	
	20F630	50	5	2	-7	4	1	1	1	1	1	
	CU20F630	50	5	2	-7	4	1	1	1	1	1	
	DEF											
ADJUSTMENT PROCEDURE	DATA SETUP FOR FIRST AND SECOND STAGE SERVICE DATA											
	FUNCTION	F18 R-D(R2)	F19 R-D(R)	F20 R-D(B)	F21 B-D(R2)	F22 B-D(B)	F23 C-OF	F35 TI-OF	F41 SL(AV)	F48 AS(AV)	F49 FAO-VOL	F54 TIN-VOL
	20F630	+8	+3	-2	-18	-8	+6	+10	+8	1	1	58 -8
	CU20F630	+8	+3	-2	-18	-8	+6	+10	+8	1	1	58 -8
	DEF											

ADJUSTMENT ITEM	H-POSITION	
ADJUSTMENT POSITION	V07	STEP RANGE 0-31
CONTROL	I <sup>2</sup> C BUS CONTROL	
PRE-ADJUST REQUIREMENT	OPTION SET UP, BUS SET UP, CRT-PURITY	
CONTENT	US 4 CH LION HEAD (MONOSCOPE)	
INPUT CONDITION	AC 120V, US MAGNETIC FIELD	
OUTPUT	CONFIRMATION BY CRT SCREEN	
ADJUSTMENT PROCEDURE	1. ADJUST THE <b>V07</b> BUS DATA TO HAVE A BALANCE POSITION TO SPEC OF <b>A=B</b> . 2. IF CANNOT MAKE IT TO <b>A=B</b> , ADJ FROM THE BEST POINT SO THAT <b>B</b> SLIDELY SMALLER THAN <b>A</b>	
		
[CHECKING SPEC] LEFT AND RIGHT SYMMETRICAL		

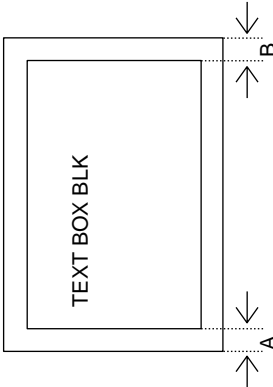
17-1

ADJUSTMENT ITEM	V-SIZE	
ADJUSTMENT POSITION	V09	0-63
CONTROL	I <sup>2</sup> C CONTROL	
PRE-ADJUST REQUIREMENT	OPTION SET UP, BUS SET UP, CRT PURITY, V-PHASE, +B ADJUST	
CONTENT	US 4 CH LION HEAD	
INPUT CONDITION	AC 120V	
OUTPUT	CONFIRMATION BY CRT SCREEN	
ADJUSTMENT PROCEDURE	<p>ADJUST THE V09 BUS DATA UNTILL THE OVERSCAN BECOME AS SPECIFIED BELOW.</p> <p>CAUTION: - PLEASE AGING TV MORE THAN 10 MINUTES BEFORE ADJUSTMENT.</p>	
	[CHECKING SPEC] OVERSCAN $10 \pm 2.5\%$	

17-2

ADJUSTMENT ITEM	V-PHASE	
ADJUSTMENT POSITION	V06	0-7
CONTROL	I <sup>2</sup> C CONTROL	
PRE-ADJUST REQUIREMENT	OPTION SET UP, BUS SET UP, CRT-PURITY	
CONTENT	US 4 CH LION HEAD (MONOSCOPE PATTERN)	
INPUT CONDITION	120V, RF INPUT, ZERO MAGNETIC FIELD	
OUTPUT	CONFIRMATION ON CRT SCREEN	
ADJUSTMENT PROCEDURE	ADJUST V06 BUS DATA TO HAVE MOST ACCEPTABLE VERTICAL POSITION. THE MONOSCOPE PATTERN SHOULD BE BALANCE IN VERTICAL POSITION <b>NOTE: THE DATA FOR V06 LIMIT AT &lt;= 04, EVEN POSITION GOOD ENOUGH</b>	
	[CHECKING CONFIRMATION]	

18-1

ADJUSTMENT ITEM	CLOSED CAPTION SET UP		
ADJUSTMENT POSITION	V18	STEP RANGE	0~255
CONTROL	I <sup>2</sup> C CONTROL		
PRE-ADJUST REQUIREMENT	OPTION SET UP, BUS SET UP		
CONTENT	US 4 CH LION HEAD		
INPUT CONDITION	AC 120V		
OUTPUT	CONFIRMATION ON CRT DISPLAY.		
ADJUSTMENT PROCEDURE	1) BY SELECTING THE <b>V18</b> , BOX BLK TEXT WILL BE APPEARED. 2) ADJUST THE <b>V18</b> BUS DATA TO HAVE A BALANCE POSITION TO SPEC OF A=B.		
			
[CHECKING SPEC] LEFT AND RIGHT SYMMETRICAL			

18-2

ADJUSTMENT ITEM	H-VCO	
ADJUSTMENT POSITION	V21	STEP RANGE 0-7
CONTROL	I <sup>2</sup> C CONTROL	
PRE-ADJUST REQUIREMENT	OPTION SET UP, BUS SET UP	
CONTENT	NO SIGNAL (RASTER) CONDITION	
INPUT CONDITION	AC 120V	
OUTPUT	IC 801 PIN 11 (MANUAL ADJ)	
ADJUSTMENT PROCEDURE	1) GO TO SERVICE MODE, 2) GO TO SERVICE DATA V21, ADJ UNTIL FREQ AS BELOW (SELF ADJ) 1) GO TO SERVICE MODE, BY SELECTING THE SERVICE DATA V21 2) PRESS THE R/C TO OPERATE AUTO H-VCO, OSD APPEAR "OK" AT SCREEN 3) IF APPEAR "NG" REPEAT STEP 2	
	<b>[CHECKING SPEC]</b> FREQ = 15.735 ± 0.2 KHz	

19-1

ADJUSTMENT ITEM	PIF-VCO	
ADJUSTMENT POSITION	V10	STEP RANGE 0-63
CONTROL	I <sup>2</sup> C CONTROL	
PRE-ADJUST REQUIREMENT	OPTION SET UP, BUS SET UP	
CONTENT	NO SIGNAL (RASTER) CONDITION	
INPUT CONDITION	AC 120V	
OUTPUT	CONFIRMATION ON CRT DISPLAY (AUTO), IC801 PIN 2 VOLTAGE (MANUAL).	
ADJUSTMENT PROCEDURE	(AT SELF ADJUSTMENT MODE) 1) GO INTO SERVICE MODE, BY SELECTING THE SERVICE DATA V10 2) PRESS THE R/C FOR AUTO PIF-VCO KEY, OSD APPEAR "OK" AT SCREEN 3) IF APPEAR "NG" PLS REPEAT STEP2 (AT MANUAL ADJUSTMENT MODE) 1) GO INTO SERVICE MODE, BY SELECTING THE SERVICE DATA V10 2) ADJUST THE DATA UP/DOWN UNTIL IC801 PIN 2 VOLTAGE BECOME AS SPECIFIED BELOW	
	<b>[CHECKING SPEC]</b> 2.5 ± 0.5 V DC (CHECKING SPEC : 2.50 ± 1.5V)	

19-2

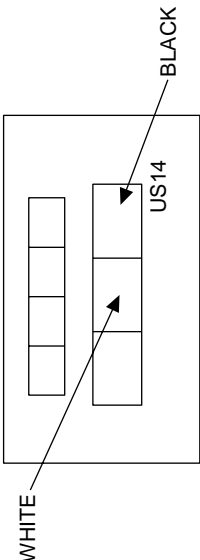
ADJUSTMENT ITEM	RF-AGC	
ADJUSTMENT POSITION	V08	STEP RANGE 0-127
CONTROL	I <sup>2</sup> C CONTROL	
PRE-ADJUST REQUIREMENT	OPTION SET UP, BUS SET UP	
CONTENT	US10CH HALF COLOR BAR	
INPUT CONDITION	RF INPUT FIELD STRENGTH <b>56dBμV</b> (FIX)	
OUTPUT	TUNER AGC TERMINAL (TP 201) OR CRT DISPLAY CONFIRMATION	
ADJUSTMENT PROCEDURE	<b>(AT SELF ADJUSTMENT MODE)</b> 1. GO TO SERVICE MODE 2. GO TO SERVICE DATA <b>V08</b> , PRESS R/C TO OPEARATE AUTO-AGC KEY AND CONFIRM THE <b>OK</b> DISPLAY ON THE SCREEN. 3. IF APPEAR NG PLS REPEAT STEP 2 AGAIN.  <b>(AT MANUAL ADJUSTMENT MODE)</b> 1. ADJUST THE V08 BUS DATA UNTIL AGC TERMINAL VOLTAGE BE-COME MAXIMUM, THEN DROP 0.1V BELOW MAXIMUM VOLTAGE. 2. CHANGE THE ANTENNA INPUT SIGNAL TO 63-67 dBμV, AND MAKE SURE THERE IS NO NOISE 3. CHANGE THE ANTENNA INPUT SIGNAL TO 90-95 dBμV TO BE SURE THAT THERE IS NO CROSS MODULATION BEAT.	
	[CHECKING SPEC] MAX - 0.1V dc	

20-1

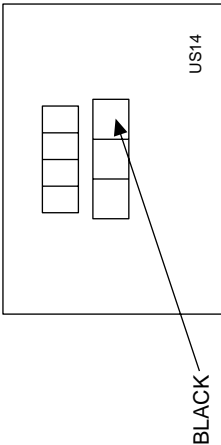
ADJUSTMENT ITEM	SCREEN	
ADJUSTMENT POSITION	V11, V12, V13	STEP RANGE 0-255
CONTROL	I <sup>2</sup> C CONTROL	
PRE-ADJUST REQUIREMENT	OPTION SET UP, BUS SET UP	
CONTENT	WINDOW PATTERN OR US4CH LION HEAD	
INPUT CONDITION	120V	
OUTPUT	CONFIRMATION ON CRT DISPLAY	
ADJUSTMENT PROCEDURE	1) IN SERVICE MODE, SET <b>V04&amp;V11&amp;V12&amp;V13</b> TO 127; <b>V14&amp;V15</b> TO 64, GET IN Y-MUTE BY R/C AND SET <b>V19</b> TO "1", PICTURE APPEAR IN CUT-OFF CONDITION 2) ADJUST THE SCREEN SO THAT CUT-OFF LINE APPEAR IN LOW BRIGHT, THEN JUDGE THAT WHETHER THE CUT-OFF LINE APPEAR IN RED OR GREEN OR BLUE COLOR, IN THIS CONDITION V11=R-CUTOFF, V12=G-CUTOFF, V13=B-CUTOFF, FIX THE DATA OF THE COLOR APPEAR IN CUTOFF LINE AND USE R/C TO ADJUST THE OTHER TWO CUT-OFF DATA SO THAT CUT-OFF LINE COLOR BE-COME WHITE. 3) TURN THE SCREEN VR OF FBT SO THAT CUT-OFF LINE JUST DIS-APPEAR AND USE R/C TO SET <b>V19</b> TO "0", NEXT DISABLE THE Y-MUTE SO THAT PICTURE APPEAR IN NORMAL MODE.	
	[VOLTAGE CONFIRMATION]	

20-2

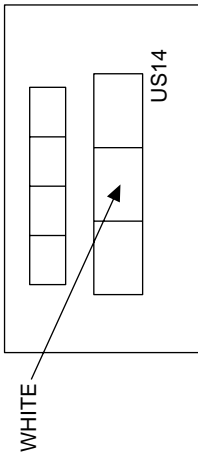


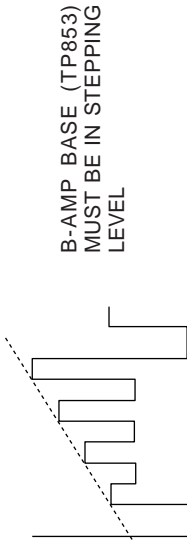
ADJUSTMENT ITEM	WHITE BALANCE		
ADJUSTMENT POSITION	V14,V15,V11,V12,V13	STEP RANGE	0-127, 0--255
CONTROL	I <sup>2</sup> C BUS CONTROL		
PRE-ADJUST REQUIREMENT	OPTION SET UP, BUS SET UP, SCREEN		
CONTENT	23CH 501RE WINDOW PATTERN		
INPUT CONDITION	120V		
OUTPUT	CRT SCREEN DISPLAY.		
ADJUSTMENT PROCEDURE	<p>1) <b>WHITE (HIGH BEAM)</b> FIRST LET THE GUN POINT AT <b>BLACK</b> POSITION (AS DRAWING ATTACH), ADJ V04 UNTIL <b>BRIGHTNESS Y</b> BECOME <b>5 cd/m2</b>, THEN LET THE GUN POINT AT <b>WHITE</b> POSITION (AS DRAWING ATTACH), ADJUST <b>V01</b> UNTIL BRIGHTNESS Y BECOME <b>150 cd/m2</b>, ADJUST THE BUS DATA OF <b>V14</b> (R DRIVE), <b>V15</b>(B DRIVE) UNTIL THE AXIS OF COLOR TEMPERATURE BECOME <b>X=0.273, Y=0.280</b></p> <p>2) <b>BLACK (LOW BEAM)</b> LET THE GUN POINT AT BLACK POSITION, IF THE VALUE SHIFTED AWAY FROM THE DATA ADJUSTED IN STEP 1), ADJUST AGAIN THE TWO SERVICE DATA WHICH HAVE CHOSEN AT SCREEN ADJUST SO THAT TO OBTAIN THE SIMILAR AXIS AS ABOVE.</p> <p><b>*WARNING:</b> DO NOT DISTURB THE MINI STEP GUN DATA DURING THIS ADJUSTMENT.</p> <p><b>**REPEAT STEP 1), 2) TO GET A REGULATED POSITION.</b></p>		
	<div></div>		
<b>[CHECKING CONFIRMATION]</b> X=0.273, Y=0.280 (11,600°K + 1 MPD)			

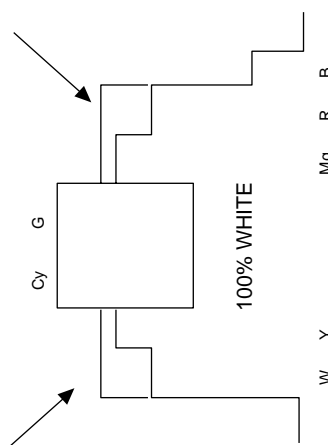
21-1

ADJUSTMENT ITEM	SUB-BRIGHT		
ADJUSTMENT POSITION	V04	STEP RANGE	0-255
CONTROL	I <sup>2</sup> C CONTROL		
PRE-ADJUST REQUIREMENT	OPTION SET UP, BUS SET UP, SCREEN, WHITE BALANCE		
CONTENT	WINDOW PATTERN		
INPUT CONDITION	120V		
OUTPUT	CRT SCREEN DISPLAY.		
ADJUSTMENT PROCEDURE	1) LET THE GUN POINT AT BLACK POSITION (AS ATTACH DRAWING), ADJUST V04 BUS DATA UNTIL BRIGHTNESS Y=0.5 cd/m <sup>2</sup> . <b>THEN STEP DOWN MORE 4 STEP</b>		
			
	<b>[VOLTAGE CONFIRMATION]</b> BRIGHTNESS Y=0.5 cd/m <sup>2</sup> , THEN STEP DOWN MORE 4 STEP		

21-2

ADJUSTMENT ITEM	SUB-PICTURE	
ADJUSTMENT POSITION	V01	STEP RANGE 0-127
CONTROL	I <sup>2</sup> C BUS CONTROL	
PRE-ADJUST REQUIREMENT	OPTION SET UP, BUS SET UP, SCREEN, WHITE BALANCE, SUB-BRIGHTNESS	
CONTENT	WINDOW PATTERN	
INPUT CONDITION	120V	
OUTPUT	CRT SCREEN DISPLAY.	
ADJUSTMENT PROCEDURE	1) LET THE GUN POINT AT WHITE POSITION (AS ATTACH DRAWING), ADJUST <b>V01</b> BUS DATA UNTIL BRIGHTNESS Y=150 cd/m <sup>2</sup> . <b>NOTE: ALLOWABLE DATA FOR V01 IS &gt;= 90, EVEN Y CAN'T MATCH THE SPEC</b>	
		
	[VOLTAGER CONFIRMATION] BRIGHTNESS Y=150 cd/m <sup>2</sup>	

ADJUSTMENT ITEM	SUB-TINT	
ADJUSTMENT POSITION	V02	STEP RANGE 0-127
CONTROL	I <sup>2</sup> C CONTROL	
PRE-ADJUST REQUIREMENT	OPTION SET UP, BUS SET UP, VCO ADJ, RF-AGC	
CONTENT	US 10 CH HALF COLOR BAR PATTERN	
INPUT CONDITION	120V	
OUTPUT	B-AMP TR BASE (TP853) CONFIRM WITH OSCILLOSCOPE	
ADJUSTMENT PROCEDURE	1) GET IN Y-MUTE FUNCTION BY R/C. 2) ADJUST THE <b>V02</b> BUS DATA TO GET A WAVEFORM AS BELOW. 3) DISABLE THE Y-MUTE **PLS TAKE NOTE THAT SERVICE MODE DATA F53 NEED TO SET +8	
		
[CONFIRMATION]		

ADJUSTMENT ITEM	SUB-COLOR	
ADJUSTMENT POSITION	V03	0-127
CONTROL	I <sup>2</sup> C BUS CONTROL	
PRE-ADJUST REQUIREMENT	OPTION SET UP, BUS SET UP, VCO ADJ, RF-AGC, <b>SUB-PICT, SUB-TINT</b>	
CONTENT	US 10 CH HALF COLOR BAR PATTERN	
INPUT CONDITION	120V	
OUTPUT	R-AMP TR BASE (TP851) CONFIRM WITH OSCILLOSCOPE	
ADJUSTMENT PROCEDURE	<p>1) SET THE <b>V03</b> BUS DATA TO GET A WAVEFORM AS BELOW</p> <p>2) THIS WAVEFORM SHOWS THAT THE 75% WHITE &amp; RED PORTIONS OF COLOR BAR BEAT AT THE SAME LEVEL</p> <p>**PLEASE TAKE NOTE THAT SERVICE DATA F52 MUST SET TO +10</p> 	
	[CHECKING CONFIRMATION]	

23-1

ADJUSTMENT ITEM	X-RAY PROTECTION OPERATING CONFIRMATION					
ADJUSTMENT POSITION	-	STEP RANGE -				
CONTROL	-					
PRE-ADJUST REQUIREMENT	AFTER ALL ADJUSTMENT FINISHED.					
CONTENT	US 4 CH LION HEAD (MONOSCOPE PATTERN)					
INPUT CONDITION	AC 120V, RF INPUT					
OUTPUT	CONFIRMATION BY THE CRT					
ADJUSTMENT PROCEDURE	SET THE USER CONTROL TO SHIPMENT POSITION.					
	<b>[VOLTAGE CONFIRMATION]</b> CHECK THE VOLTAGE OF P603 PIN 3 AS SPECIFIED BELOW.					
	<b>[OPERATION CONFIRMATION]</b> SUPPLY THE DC VOLTAGE TO P603 PIN 3 AND MAKE SURE THE PRO- TECTOR IS FUNCTIONED. HORIZONTAL OSCILLATION STOP AND PICTURE DISAPPEAR.					
	<b>[RECOVER INFORMATION]</b> PULL OUT THE AC CORD.					
	<b>[CAUTION]</b> FROM THE RECOVER CONFIRMATION MENTIONED ABOVE, THE AC CODE MUST BE PULLED OUT AT LEAST 4 SECOND BEFORE PLUG- GING IN AGAIN.(IN ORDER TO MAKE SURE THE $\mu$ -COM HAS BEEN RESET.)					
<b>[VOLTAGE CONFIRMATION]</b>						
<table><tr><td>TP VOLTAGE</td><td>OPERATION VOLTAGE</td></tr><tr><td>18.9± 1.1V DC</td><td>24.5V</td></tr></table>			TP VOLTAGE	OPERATION VOLTAGE	18.9± 1.1V DC	24.5V
TP VOLTAGE	OPERATION VOLTAGE					
18.9± 1.1V DC	24.5V					

23-2

ADJUSTMENT ITEM	HIGH VOLTAGE	
ADJUSTMENT POSITION	-	STEP RANGE -
CONTROL	-	
PRE-ADJUST REQUIREMENT	AFTER ALL ADJUSTMENT FINISHED.	
CONTENT	US 4 CH LION HEAD (MONOSCOPE PATTERN)	
INPUT CONDITION	AC 130V, RF INPUT	
OUTPUT	CRT ANODE VOLTAGE	
ADJUSTMENT PROCEDURE	SET THE USER CONTROL TO SHIPMENT SETTING POSITION. PUSH ON Y-MUTE BY R/C CONFIRM THE VOLTAGE OF CRT ANODE BY HIGH VOLTAGE METER AND MAKE SURE THE READING IS AS BELOW. <div> <div>HIGH VOLTAGE</div> <div>BELOW 30kV</div> </div>	
	<b>[CAUTION POINT]</b> USE ELECTROSTATIC HI-VOLTAGE METER AND FOLLOW THE UL/ DHHS STANDARD TO MAKE CORRECTION AND CONTROL.	

24-1

ADJUSTMENT ITEM	V-CHIP	
ADJUSTMENT POSITION	-	STEP RANGE -
CONTROL	-	
PRE-ADJUST REQUIREMENT	AFTER ALL ADJUSTMENT FINISHED.	
CONTENT	UHF 15 CH (V-CHIP TRANSMISSION SIGNAL CH)	
INPUT CONDITION	AC 120V, RF INPUT	
OUTPUT	CONFIRMATION BY THE CRT	
ADJUSTMENT PROCEDURE	1) RECEIVE THE UHF 15 CH. 2) PUSH THE DISPLAY KEY (R/C), MAKE SURE THAT THE OSD V-CHIP RATING DISPLAY IS EQUIVALENT TO TRANSMISSION RATING.	
	<b>[VOLTAGE CONFIRMATION]</b>	

24-2

ADJUSTMENT ITEM	TRI-VISION	
ADJUSTMENT POSITION	-	STEP RANGE -
CONTROL	-	
PRE-ADJUST REQUIREMENT	AFTER ALL ADJUSTMENT FINISHED.	
CONTENT	RATING SYS. DOWNLOAD SIGNAL A/B (PRCC SIG) INCLUDED SIGNAL.	
INPUT CONDITION	AC 120V, RF INPUT	
OUTPUT	CONFIRMATION BY CRT SCREEN	
ADJUSTMENT PROCEDURE	<b>(DOWNLOADING CONFIRMATION)</b> 1) RECEIVE THE DOWNLOAD A SIGNAL. 2) SELECT V-CHIP CONTROL MENU THEN ON THE DOWNLOAD. 3) UNPLUG THE AC THEN PLUG AGAIN. 4) BACK TO V-CHIP CONTROL MENU, CHECK THE DOWNLOADED RATING AND NAME.	
	<b>(UPLOADING CONFIRMATION)</b> 1) RECEIVE THE DOWNLOAD B SIGNAL. 2) UNPLUG THE AC CORD AND PLUG IT AGAIN. 3) BACK TO V-CHIP CONTROL MENU, CHECK THE DOWNLOADED RATING AND NAME.	
	* Do check one sample that been picked up for presenting the specified group sample.	
	<b>[CONFIRMATION]</b>	

25-1

ADJUSTMENT ITEM	MS LEVEL ADJUSTMENT		
ADJUSTMENT POSITION	M01	STEP RANGE	0~15
CONTROL	I <sup>2</sup> C BUS CONTROL		
PRE-ADJUST REQUIREMENT	OPTION SET UP, BUS SET UP, VCO ADJ, RF-AGC		
CONTENT	NO SIGNAL SIGNAL (400HZ 100% MODULATION)		
INPUT CONDITION	AC 120V, RF INPUT		
OUTPUT	IC 3001 39 PIN		
ADJUSTMENT PROCEDURE	1) SET THE SOUND VOLUME CONTROL MORE THAN 1. 2) ADJUST BUS DATA OF <b>M01</b> UNTIL THE VOLTAGE OF 39 PIN BE- COME AS SPECIFIED BELOW.		
	<b>[CHECKING SPEC]</b> 490 ± 10mVrms (CHECKING SPEC :490 ± 20mVrms)		

25-2

ADJUSTMENT ITEM	MTS+VCO ADJUSTMENT		
ADJUSTMENT POSITION	M02	STEP RANGE	0-63
CONTROL	I <sup>2</sup> C BUS CONTROL		
PRE-ADJUST REQUIREMENT	OPTION SET UP, BUS SET UP, VCO ADJ, RF-AGC		
CONTENT	SIGNAL WITHOUT NOISE (SIGNAL WITHOUT SOUND MODULATION)		
INPUT CONDITION	AC 120V		
OUTPUT	IC 3001 39 PIN		
ADJUSTMENT PROCEDURE	1) CONNECT 100 $\mu$ F ELECTROLYTIC CAPACITOR BETWEEN C3005 (-ve)-GND 2) ADJUST THE BUS DATA <b>M02</b> UNTIL THE OUTPUT FREQUENCY OF 39 PIN BECOME AS SPECIFIED BELOW. <b>NOTE: TO MINIMIZE THE PRODUCTION TIME, ITEM 1) CAN IGNORE. IF ITEM 2) CAN'T BE ADJUST, THEN ITEM 1) IS REQUIRE.</b>		
	<b>[CHECKING SPEC]</b> 62.94 $\pm$ 0.75kHz (CHECKING SPEC : 62.94 $\pm$ 1.20kHz)		

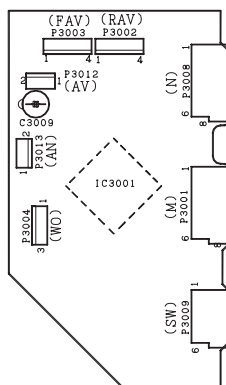
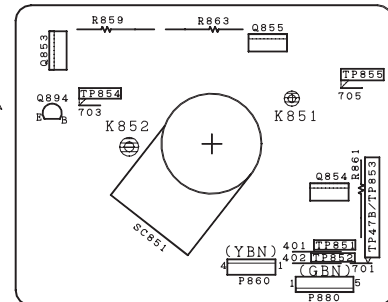
26-1

ADJUSTMENT ITEM	FILTER ADJUSTMENT		
ADJUSTMENT POSITION	M03	STEP RANGE	0-63
CONTROL	I <sup>2</sup> C BUS CONTROL		
PRE-ADJUST REQUIREMENT	OPTION SET UP, BUS SET UP, VCO ADJ, RF-AGC, MS-LEVEL, MTS-VCO		
CONTENT	SINE WAVE (9.4kHz, 600mVrms)		
INPUT CONDITION	PIN 14 (FROM C3005 - TERMINAL)		
OUTPUT	CONFIRM BY CRT SCREEN		
ADJUSTMENT PROCEDURE	1) ADJUST <b>M03</b> DATA UNTILL <b>OK</b> DISPLAY ON SCREEN ADJUST THE BUS DATA IN CENTRE OF THE RANGE.		
	<b>[CHECKING SPEC]</b> REFER TO ABOVE (CHECKING SPEC : $\pm$ 2 STEP TO CENTRE)		

26-2

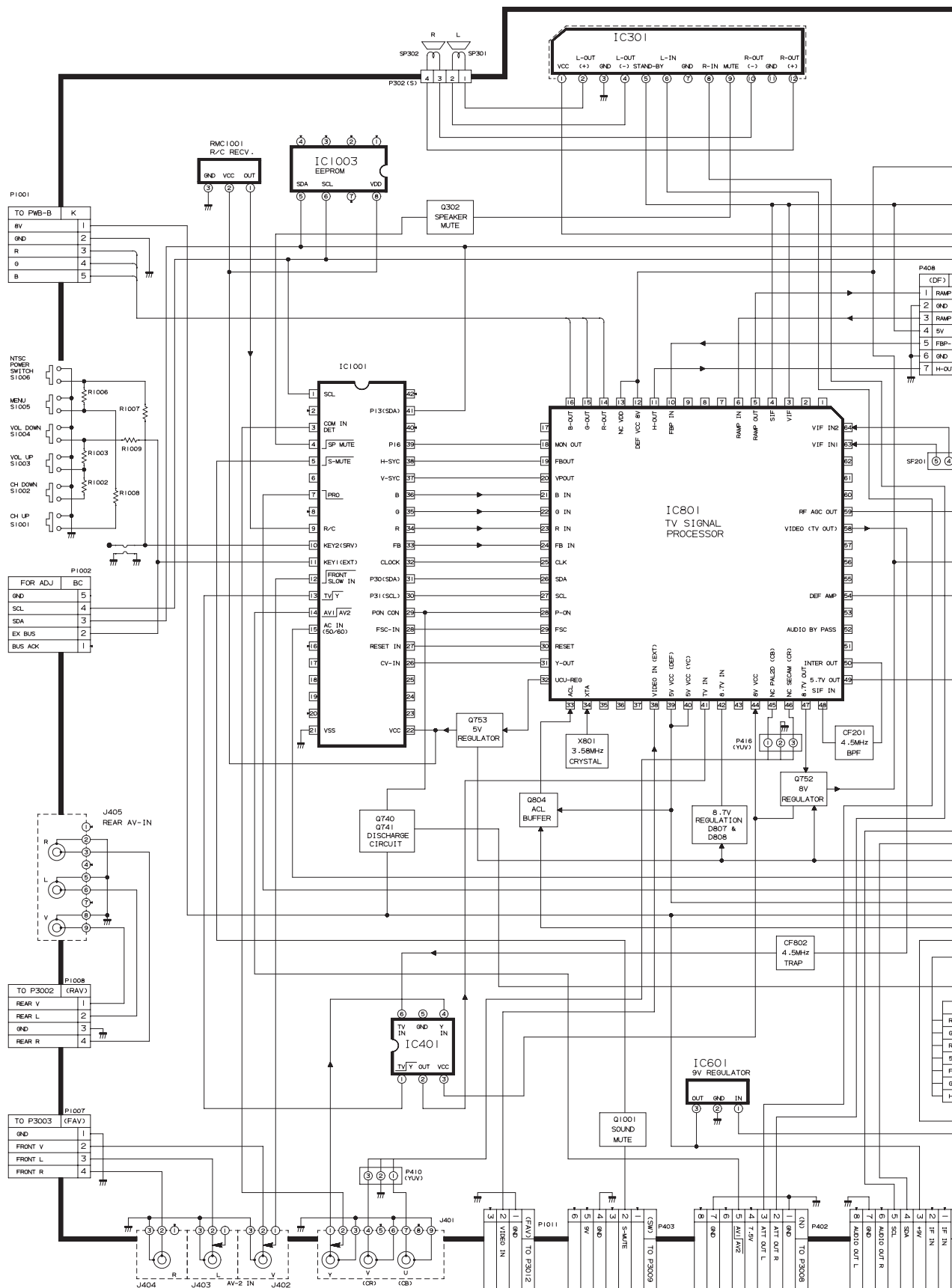


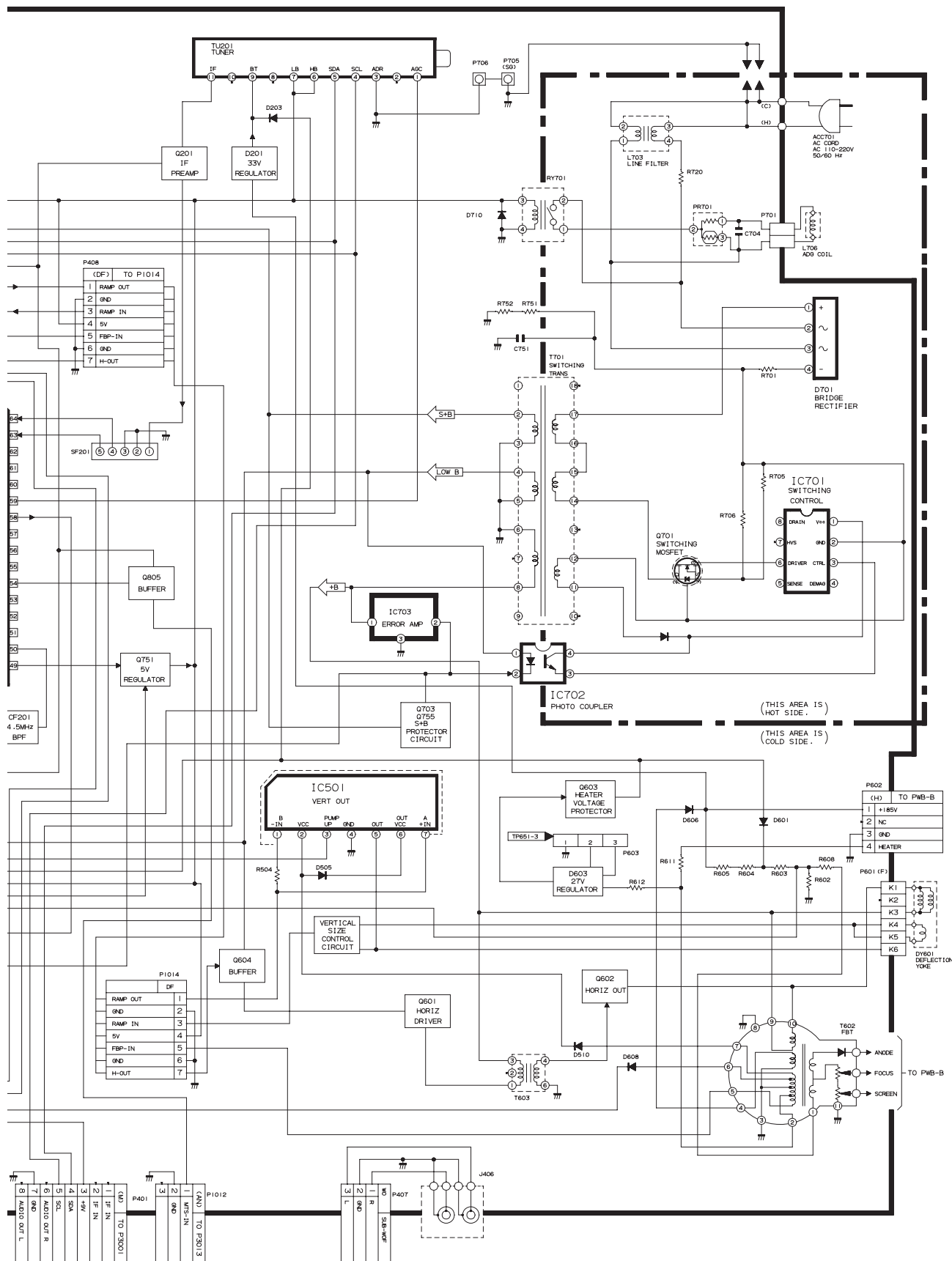
ADJUSTMENT ITEM	SEPARATION ADJUSTMENT		
	M04, M05	STEP RANGE	0-63
CONTROL	I <sup>2</sup> C BUS CONTROL		
PRE-ADJUST REQUIREMENT	OPTION SET UP, BUS SET UP, VCO ADJ, RF-AGC, MS-LEVEL, MTS-VCO, FILTER		
CONTENT	STEREO SIGNAL SIGNAL 1.: MODULATION 30%, L-CH ONLY, NR-ON, 300Hz SIGNAL 2.: MODULATION 30%, L-CH ONLY, NR-ON, 3kHz		
INPUT CONDITION	RF INPUT		
OUTPUT	IC 3001 39 PIN		
ADJUSTMENT PROCEDURE	1) INPUT SIGNAL 1, ADJUST BUS DATA OF M04 UNIT THE OF 39 PIN BECOME MINIMUM LEVEL. 2) INPUT SIGNAL 1, ADJUST BUS DATA OF M04 UNIT THE AC VOLT- AGE OF 39 PIN BECOME MINIMUM LEVEL. 3) REPEAT STEP 1) AND 2).  SET THE SOUND VOLUME TO MAXIMUM THEN MAKE SURE THE READING FROM THE SPEAKER TERMINAL MUST BE OVER THE SPEC AS SPECIFIED BELOW.		
	<b>[CHECKING SPEC]</b> OVER 25 dB (CHECKING SPEC : OVER 20 dB)		



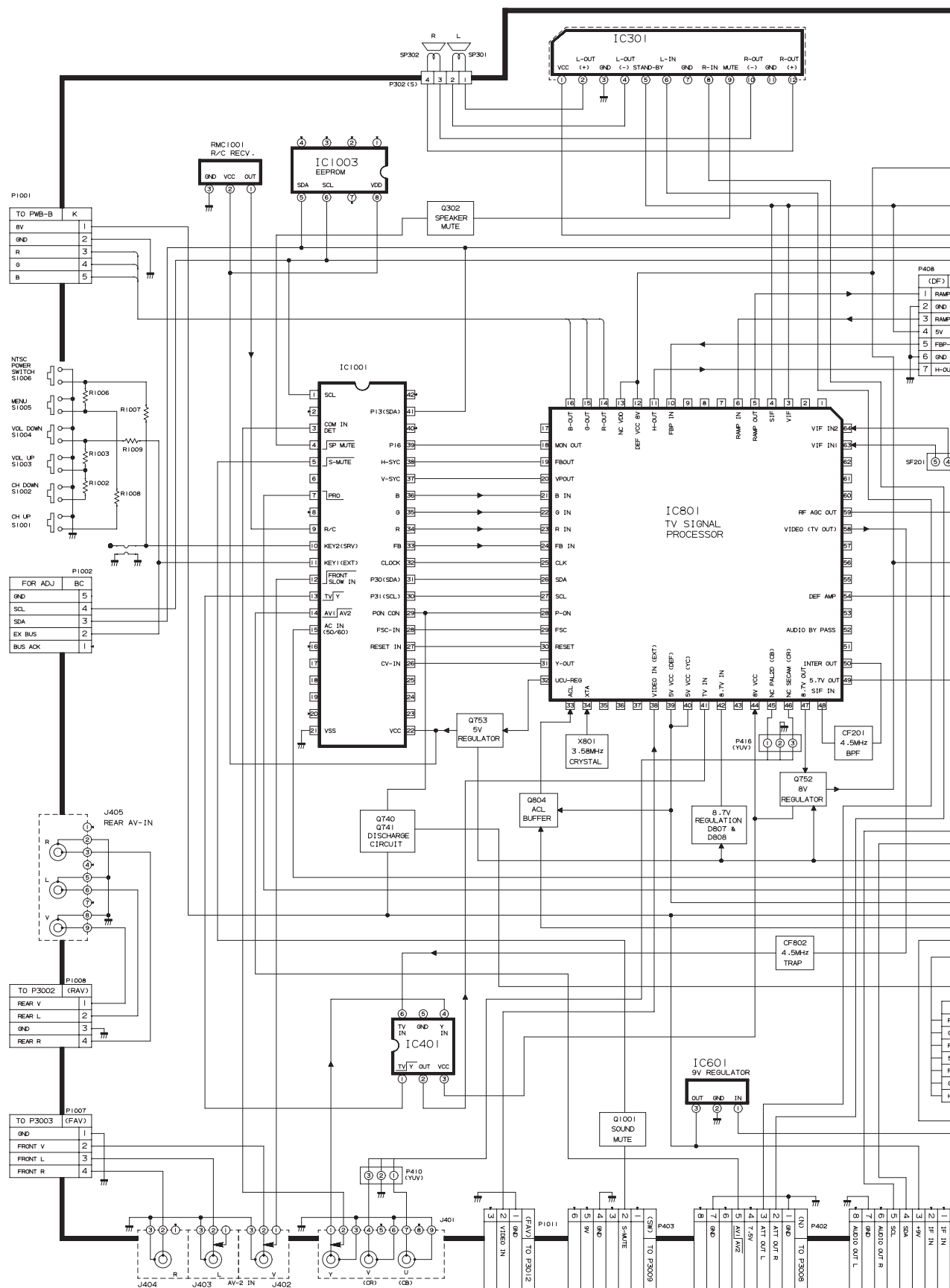


## MODEL 20F630 BLOCK DIAGRAM: MAIN Unit

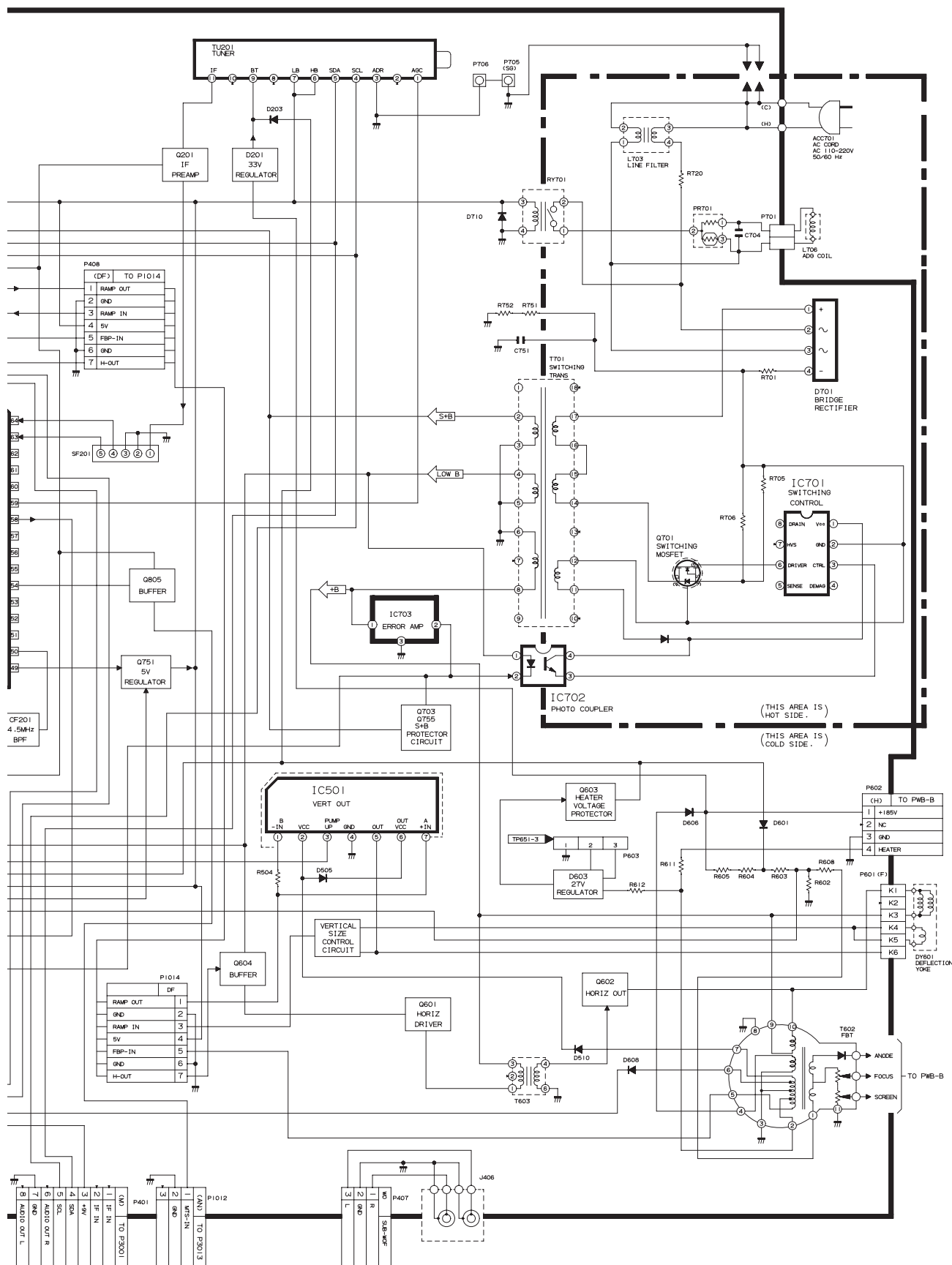




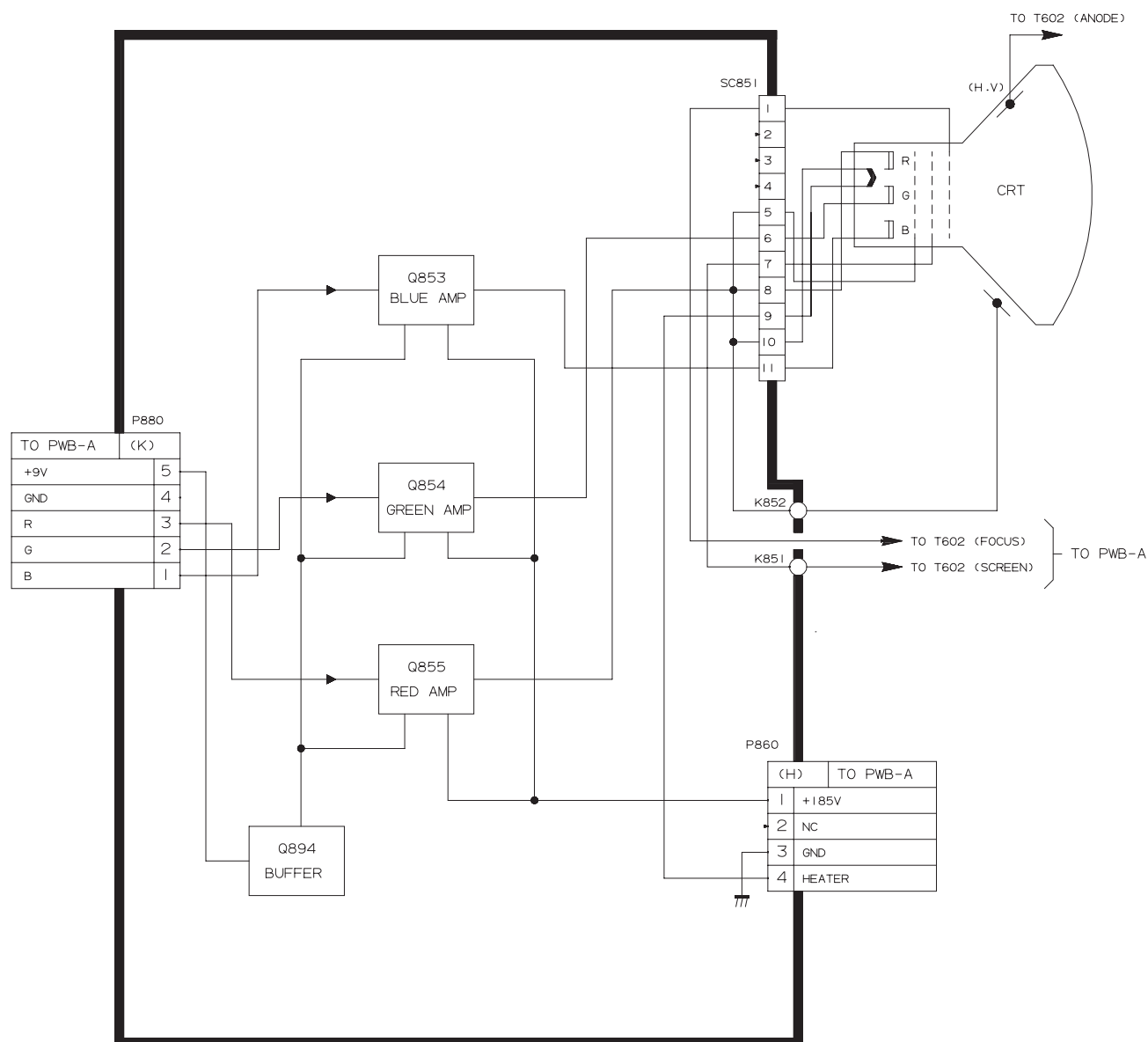
# MODEL CU20F630 BLOCK DIAGRAM: MAIN Unit



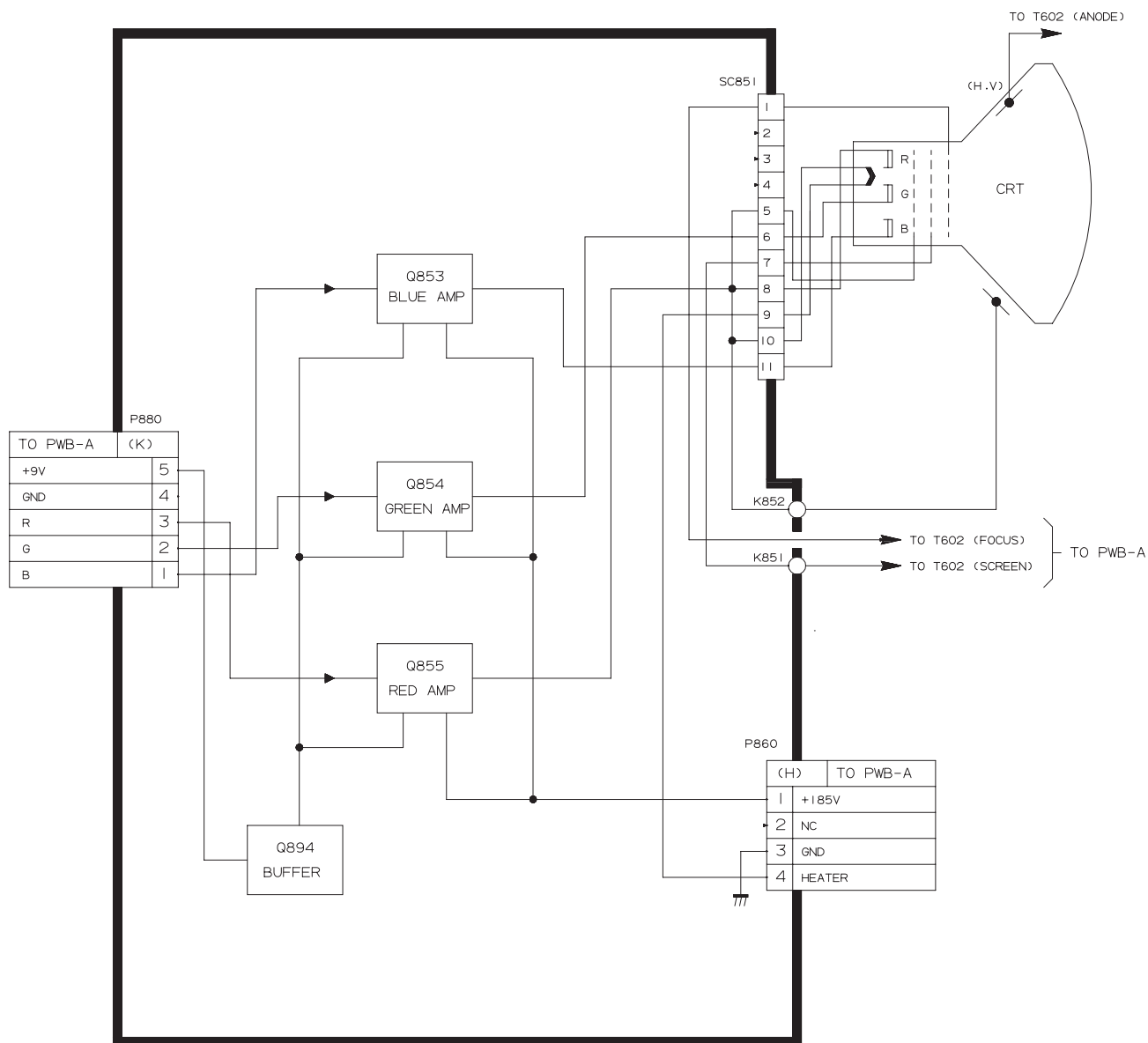




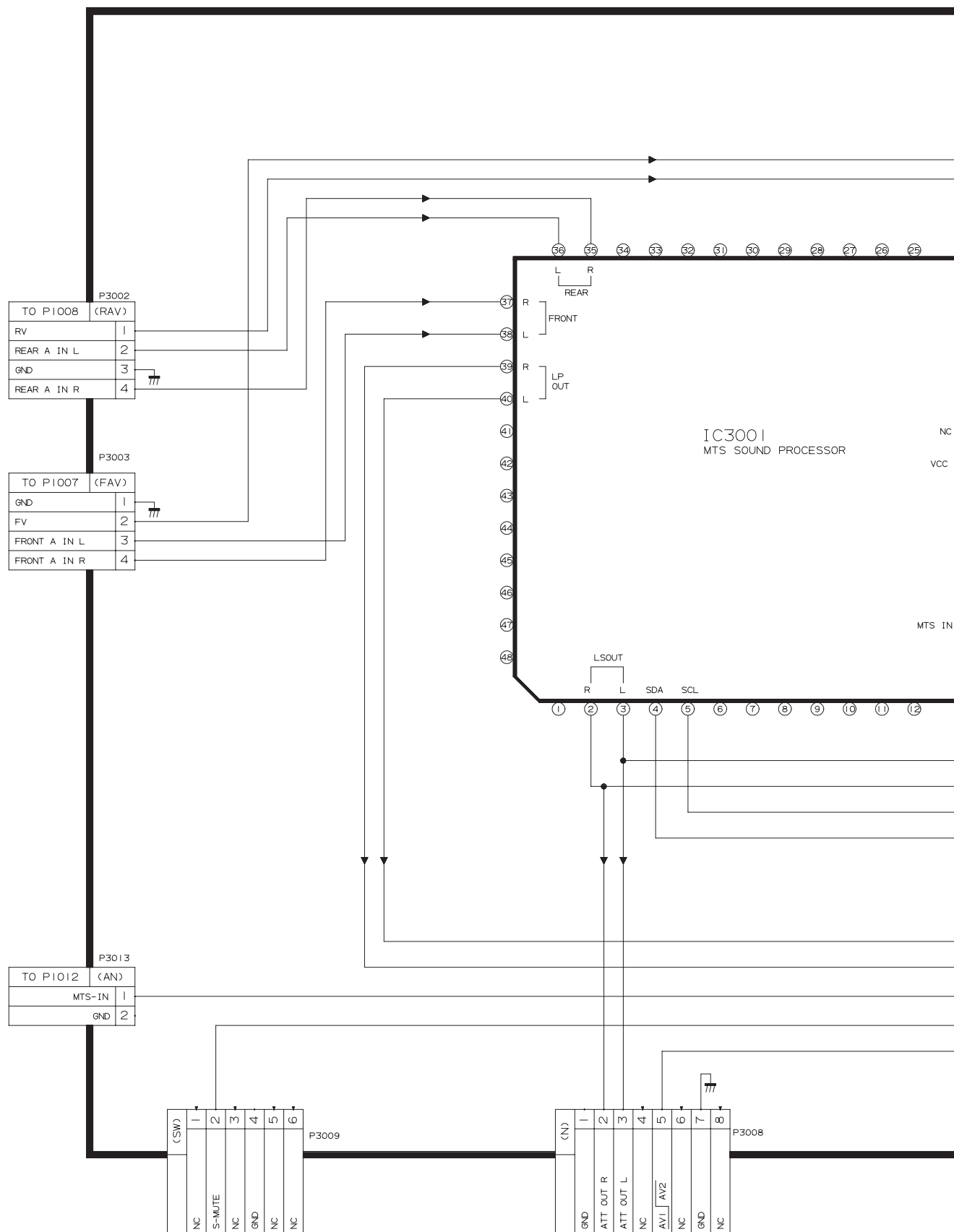
# MODEL 20F630 BLOCK DIAGRAM: CRT Unit

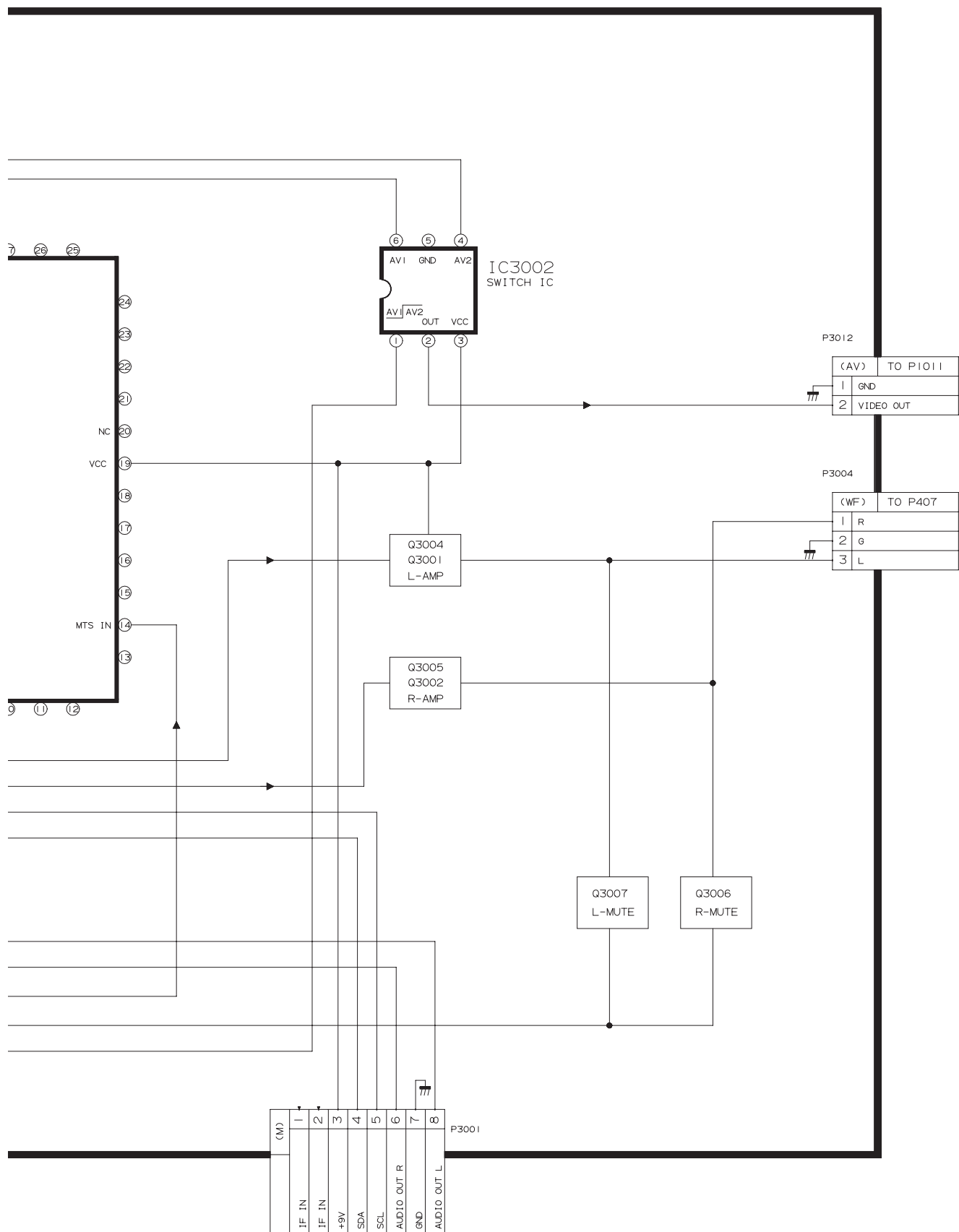


# MODEL CU20F630 BLOCK DIAGRAM: CRT Unit

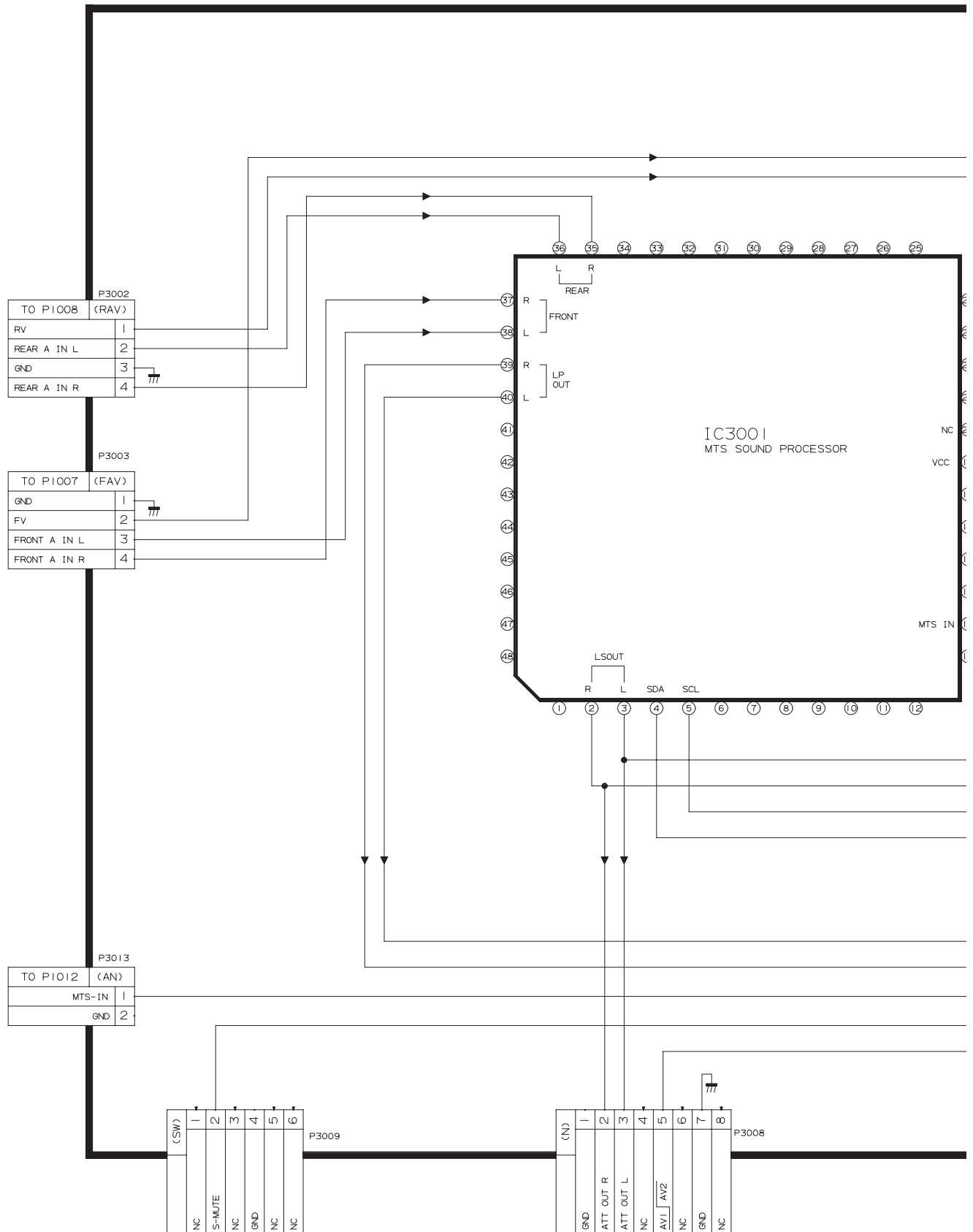


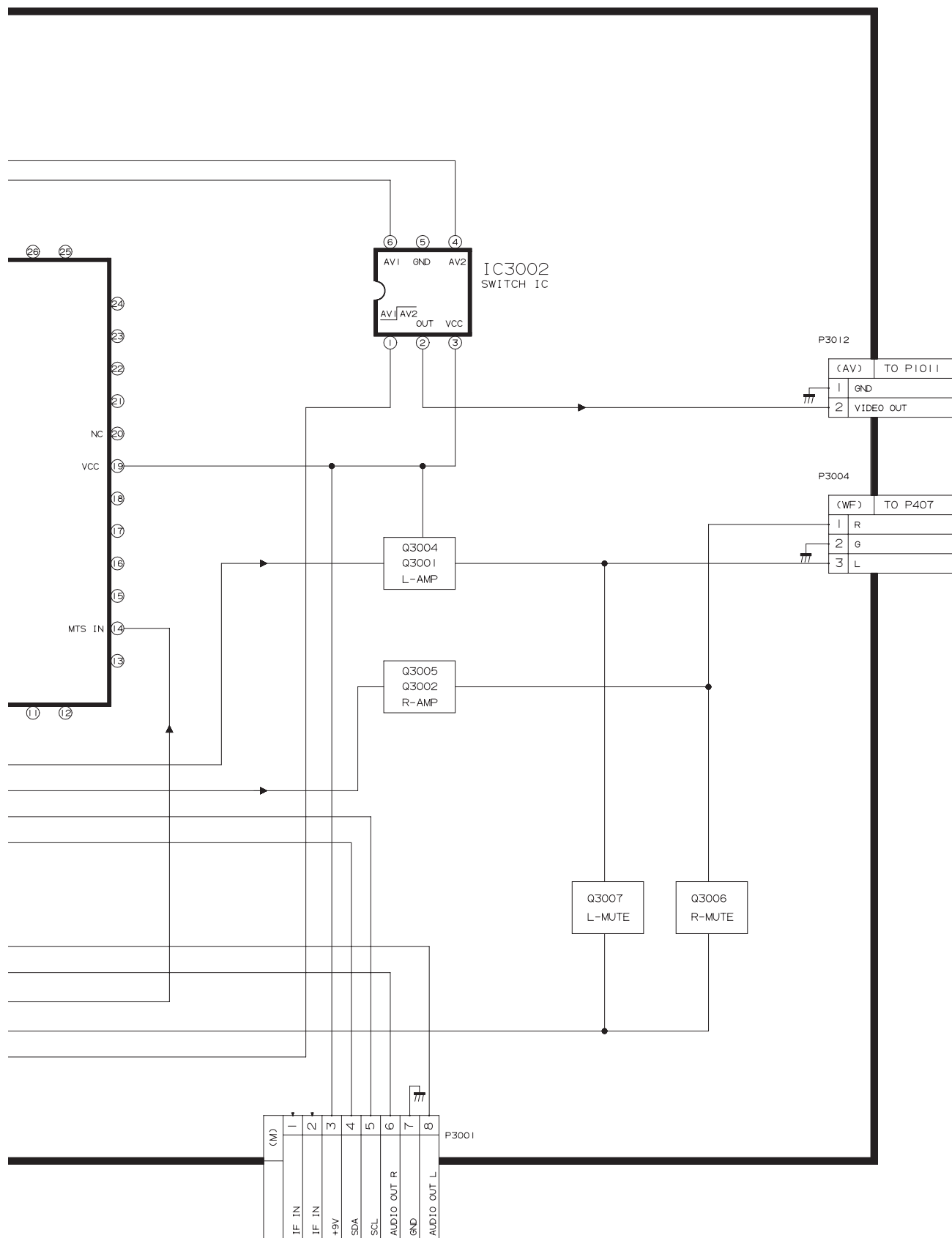
# MODEL 20F630 BLOCK DIAGRAM: MTS MODULE Unit





# MODEL 20F630 BLOCK DIAGRAM: MTS MODULE Unit





## DESCRIPTION OF SCHEMATIC DIAGRAM

### NOTES:

1. The unit of resistance "ohm" is omitted.  
( $K=k\Omega=1000\Omega$ ,  $M=M\Omega$ )
2. All resistors are 1/16 watt, unless otherwise noted.
3. All capacitors are  $\mu F$ , unless otherwise noted.  
( $P=pF=\mu\mu F$ )
4. (G) indicates  $\pm 2\%$  tolerance may be used.
5.  $\overline{\text{---}}$  indicates line isolated ground.

### VOLTAGE MEASUREMENT CONDITIONS:

1. All DC voltages are measured with DVM connected between points indicated and chassis ground, line voltage set at 120V AC and all controls set for normal picture unless otherwise indicated.
2. All voltages measured with 1000 $\mu$  V B & W or Color signal.

### WAVEFORM MEASUREMENT CONDITIONS:

1. Photographs taken on a standard gated color bar signal, the tint setting adjusted for proper color. The wave shapes at the red, green and blue cathodes of the picture tube depend on the tint, color level and picture control.
2.  $\bigcirc \blacktriangleright$  indicates waveform check points (See chart, waveforms are measured from point indicated to chassis ground.)

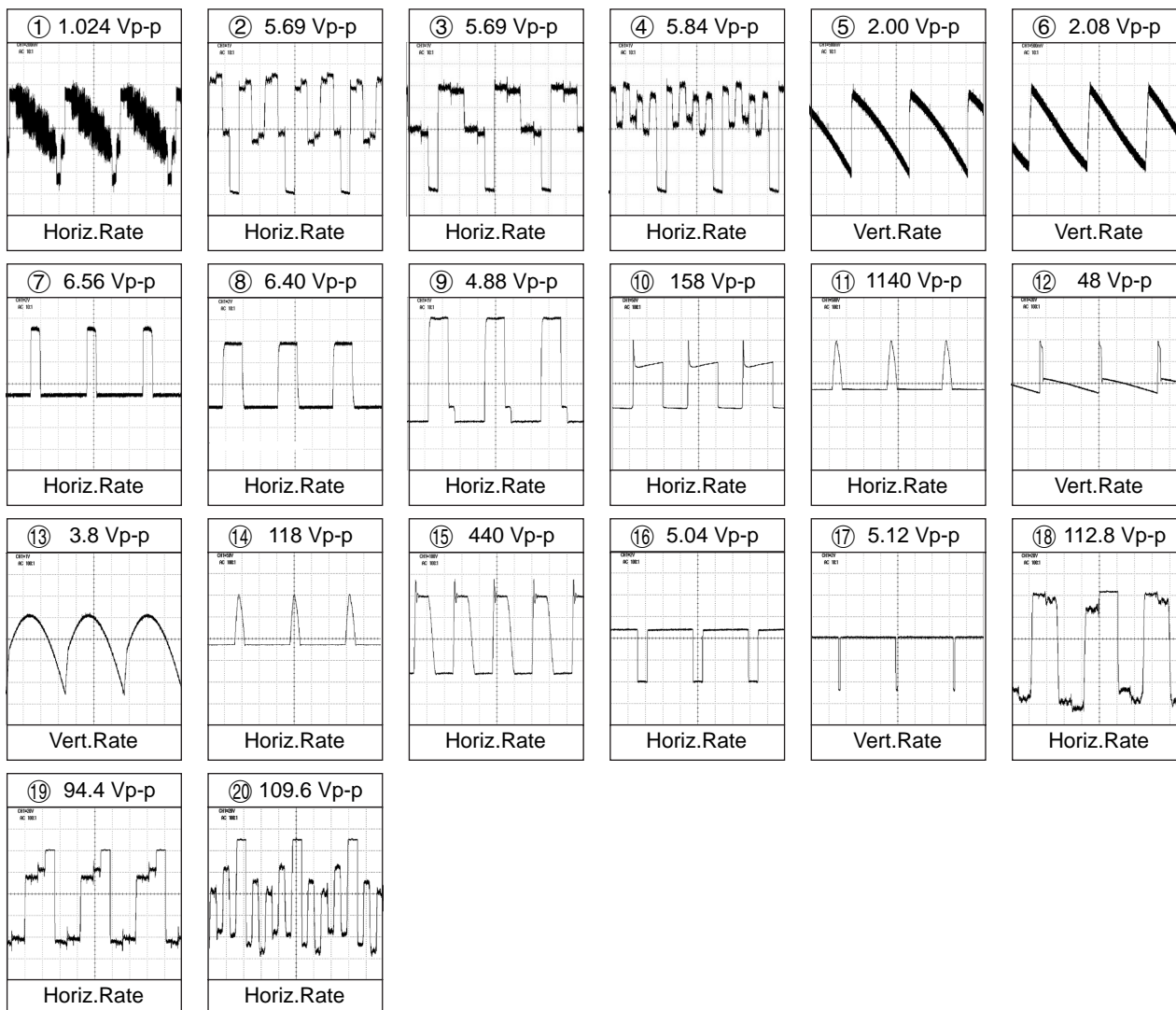
$\triangle$  AND SHADED (  ) COMPONENTS  
= SAFETY RELATED PARTS.  
 $\blacktriangle$  MARK= X-RAY RELATED PARTS.

DRGANNES MARQUES  $\triangle$  ET HACHRES (  ):   
PIECES RELATIVES A LA SECURITE.  
MARQUE  $\blacktriangle$  : PIECS RELATIVE AUX RAYONS X.

*This circuit diagram is a standard one, printed circuits may be subject to change for product improvement without prior notice.*

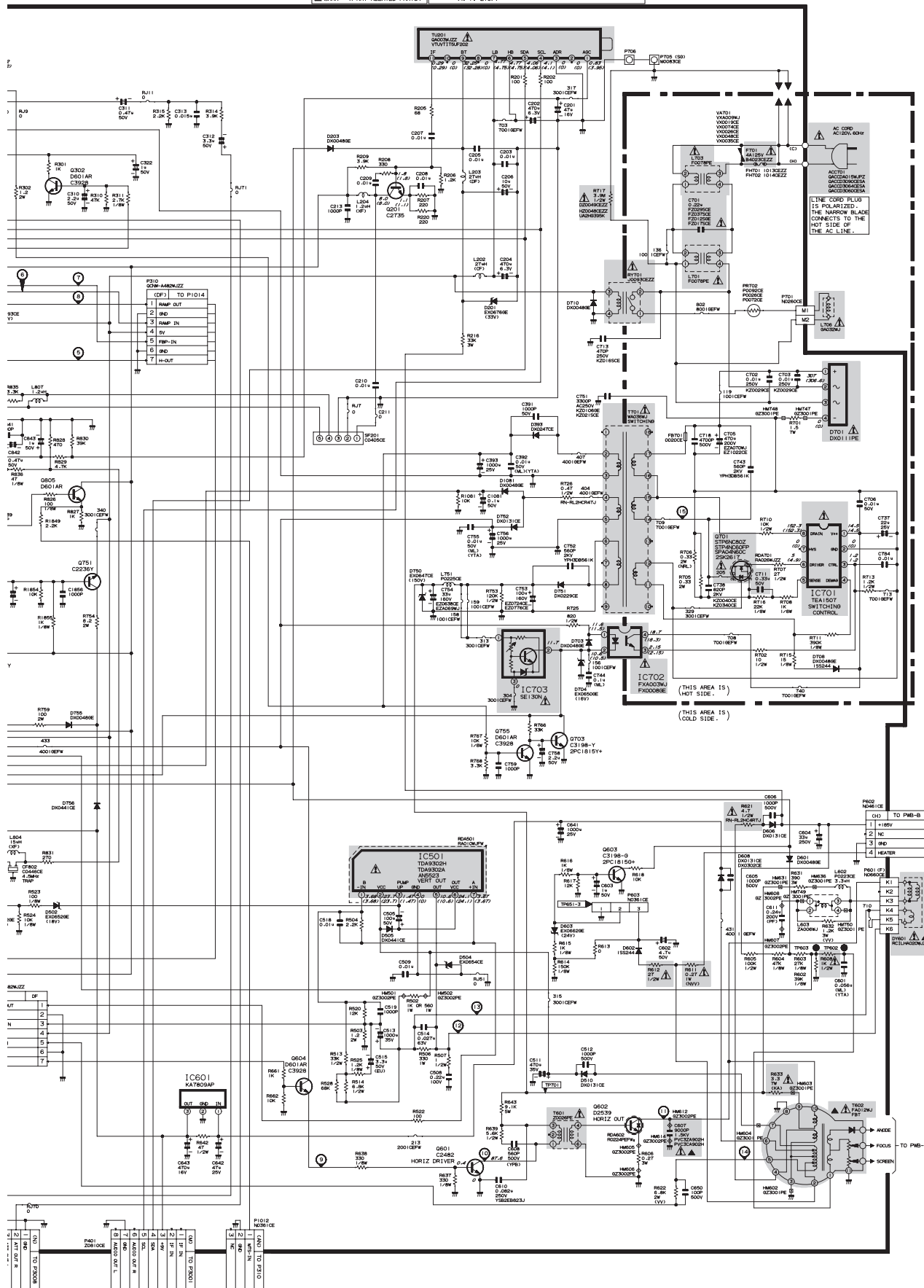


# WAVEFORMS





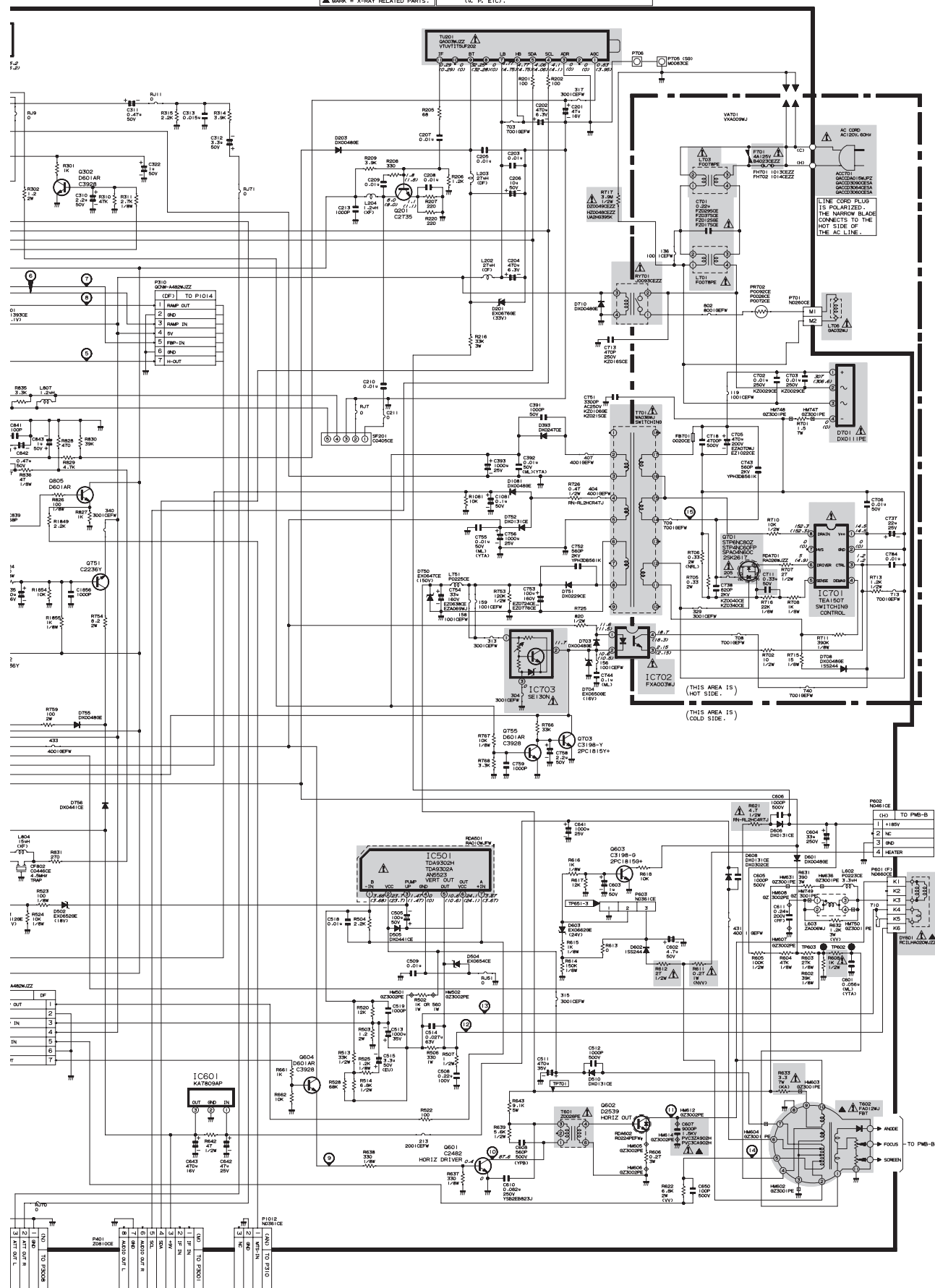
NOTE 1: THE UNIT OF RESISTANCE "OHM" IS OMITTED.  
2: ALL RESISTORS ARE 1/8WATT UNLESS OTHERWISE NOTED.  
3: UNIT OF ALL CAPACITORS ARE F WITH PREFIX SYMBOL.  
(e.g. R 10K, C 0.01, etc.)



10	11	12	13	14	15	16	17	18	19
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NOTE 1: THE UNIT OF RESISTANCE \*OHM\* IS OMITTED  
 (OHM) (200 OHM) (100K OHM)  
 2: ALL RESISTORS ARE 1/8WATT UNLESS OTHERWISE NOTED.  
 3: UNIT OF ALL CAPACITORS ARE P WITH PREFIX SYMBOL  
 (u, p, etc.).





# MODEL CU20F630 SCHEMATIC DIAGRAM: CRT Unit

H

G

F

E

D

C

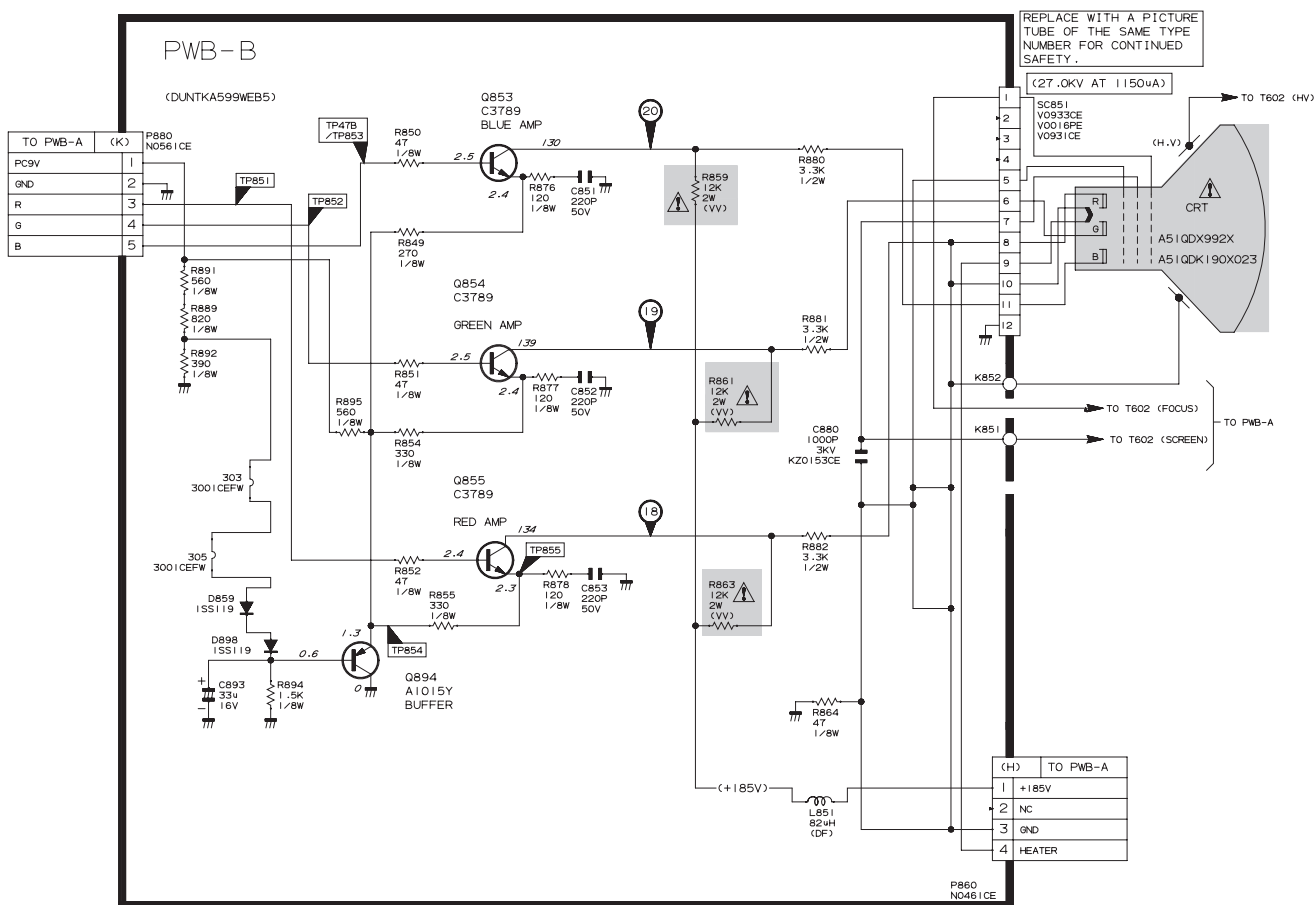
B

A

⚠ AND SHADED ( ) COMPONENTS  
= SAFETY RELATED PARTS.

NOTE: 1. THE UNIT OF RESISTANCE "OHM" IS OMITTED  
(K=1000 OHMS, M=MEGAOHM).  
2. THE UNIT OF ALL CAPACITORS ARE F WITH PREFIX SYMBOL  
(u, P, ETC.).

NOTE: ALL DIODES ARE \*1SS119 DYNASTACE \*UNLESS OTHERWISE SPECIFIED.



# MODEL 20F630 SCHEMATIC DIAGRAM: MTS MODULE Unit

H

G

F

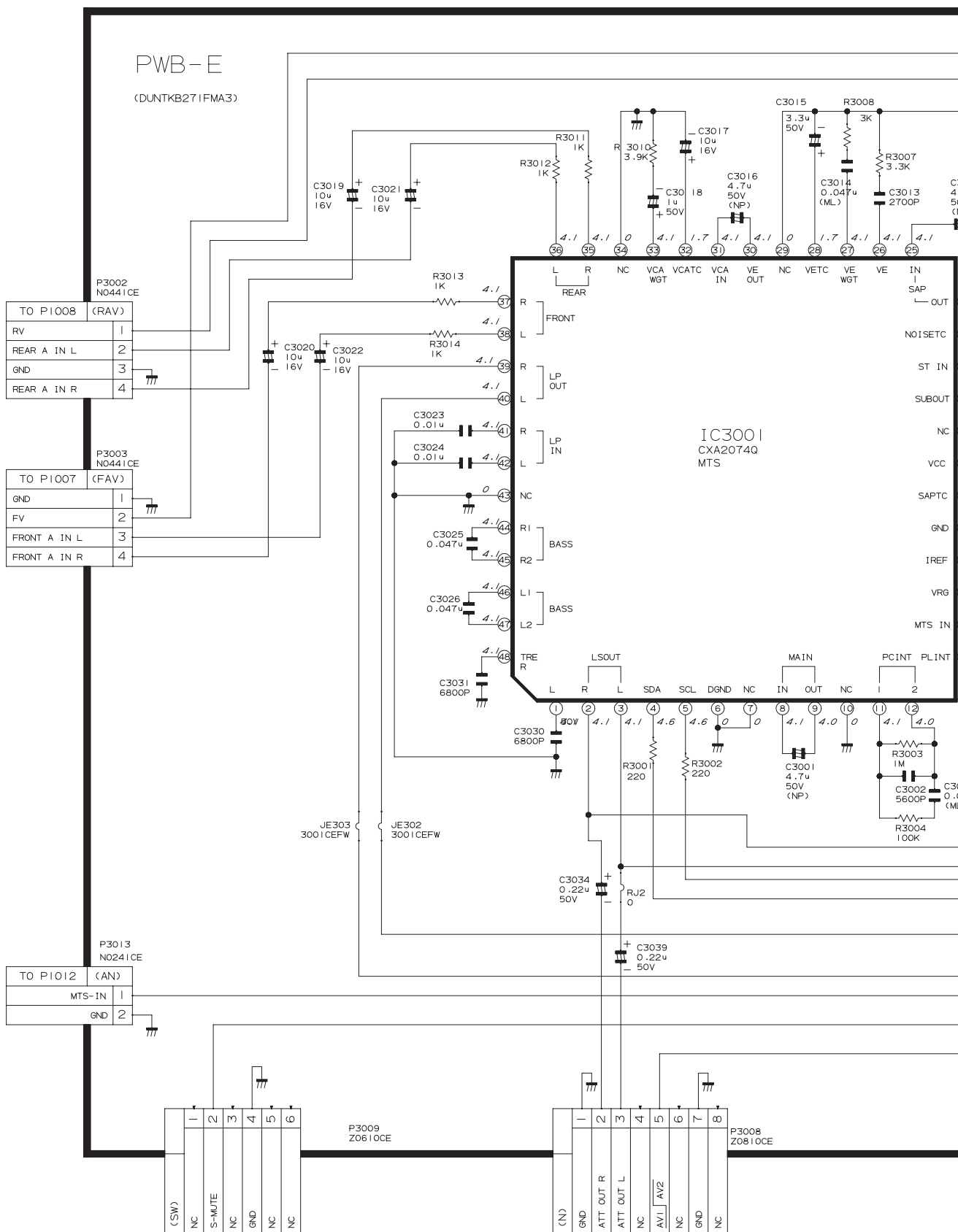
E

D

C

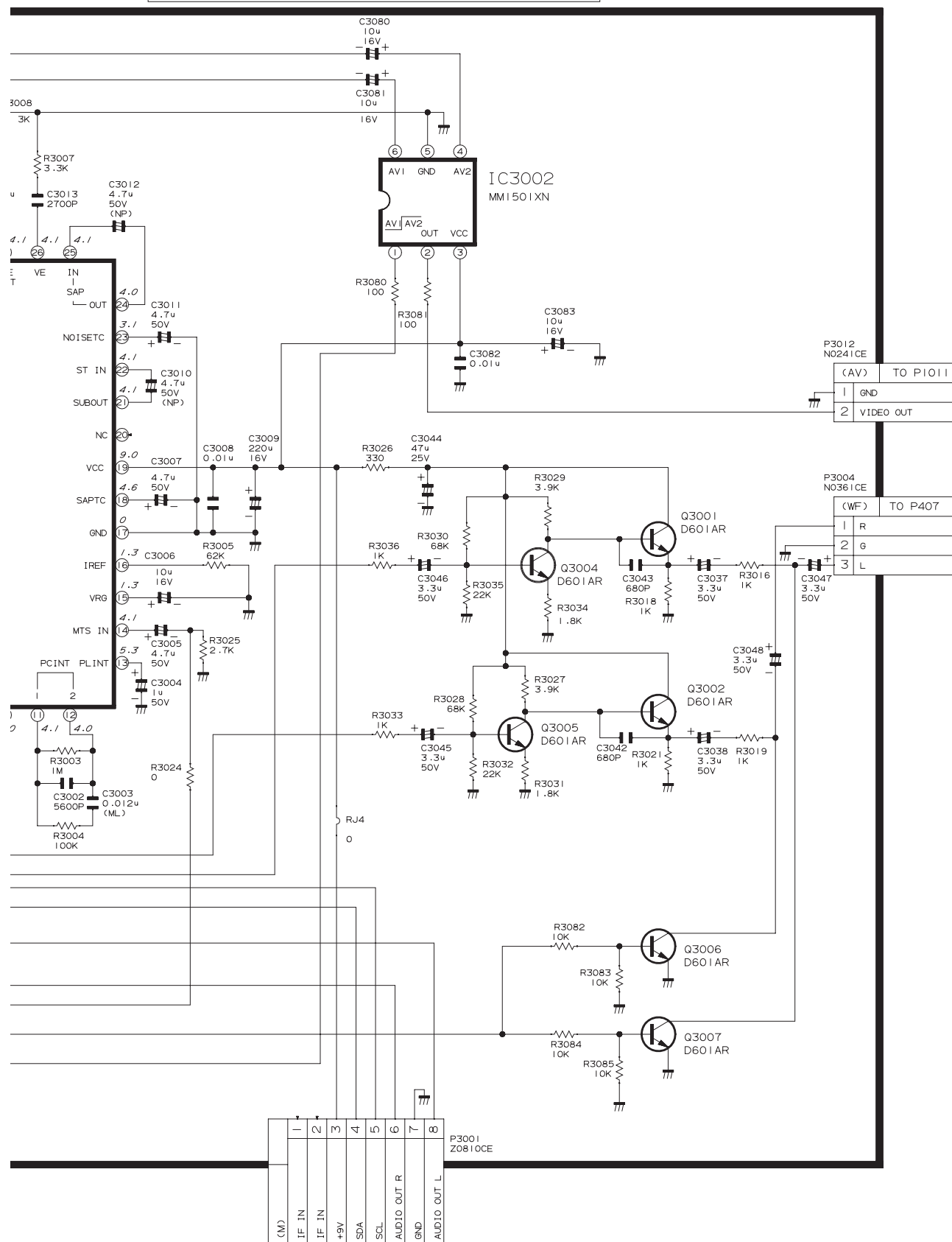
B

A





NOTE: 1. THE UNIT OF RESISTANCE "OHM" IS OMITTED  
(K=1000 OHMS, M=MEGAHM) .  
2. ALL RESISTORS ARE 1/16 WATT UNLESS OTHERWISE NOTED .  
3. UNIT OF ALL CAPACITORS ARE F WITH PREFIX SYMBOL  
(u, P, ETC) .

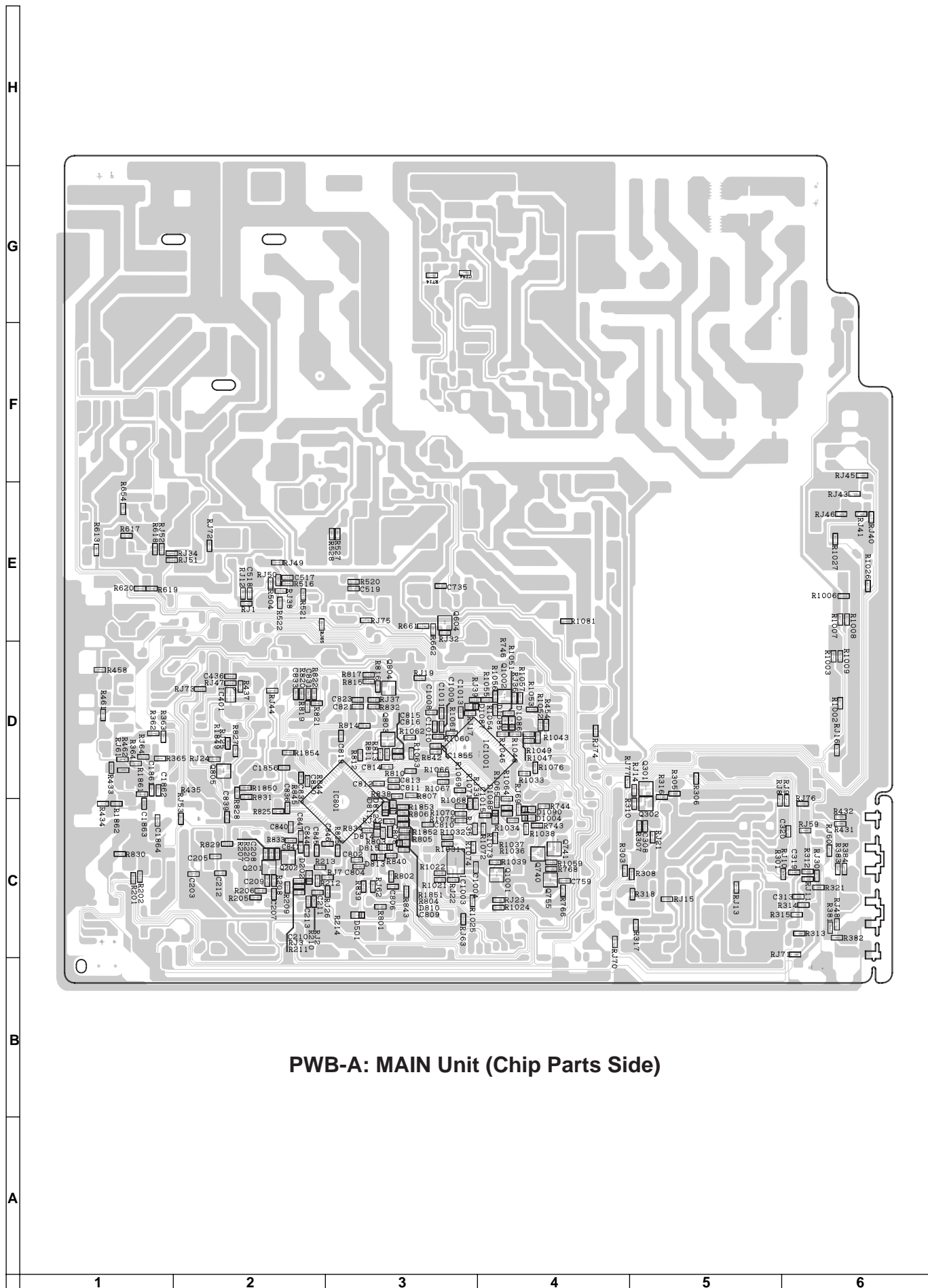


10	11	12	13	14	15	16	17	18	19
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PWB-A: MAIN Unit (Chip Parts Side)

H

G

F

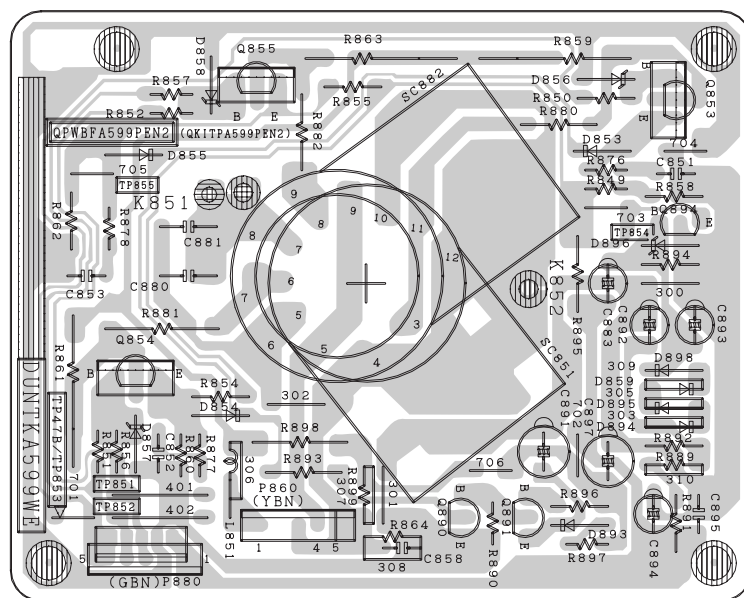
E

D

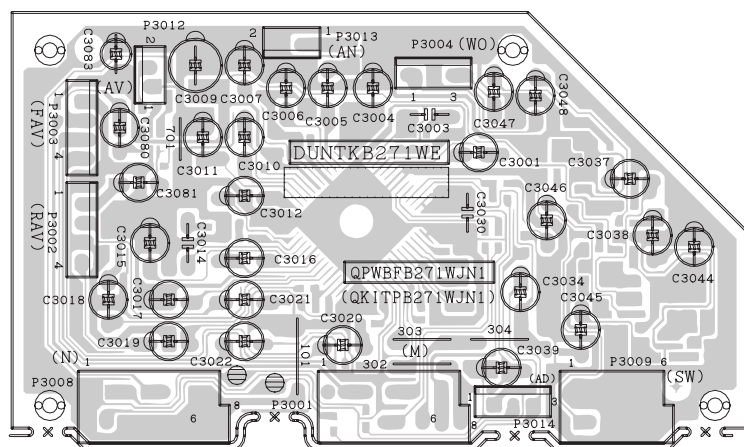
C

B

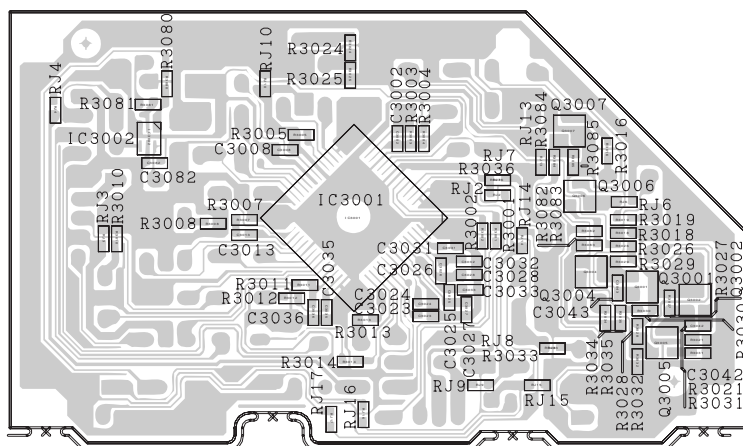
A



PWB-B: CRT Unit (Wiring Side)



PWB-E: MTS MODULE Unit (Wiring Side)



PWB-E: MTS MODULE Unit (Chip Parts Side)

1

2

3

4

5

6



# PARTS LIST

## PARTS REPLACEMENT

Replacement parts which have these special safety characteristics identified in this manual ; electrical components having such features are identified by  $\Delta$  and shaded areas in the Replacement Parts Lists and Schematic Diagrams. The use of a substitute replacement part which does not have the same safety characteristic as the factory recommended replacement parts shown in this service manual may create shock, fire or other hazards.

### "HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following information.

- |                 |                |
|-----------------|----------------|
| 1. MODEL NUMBER | 2. REF. NO.    |
| 3. PART NO.     | 4. DESCRIPTION |

in **USA**: Contact your nearest SHARP Parts Distributor to order. For location of SHARP Parts Distributor, Please call Toll-Free; 1-800-BE-SHARP

★ MARK: SPARE PARTS-DELIVERY SECTION

▲ MARK: X-RAY RELATED PARTS

Ref. No.	Part No.	★	Description	Code
<b>PICTURE TUBE</b>				
$\Delta$	VB51QDX992X2E	X	Picture Tube	
$\Delta$ L706	RCiLGA032WJZZ	X	Degaussing Coil	
	QEARCA012WJZZ	X	Ground-Part	

### PRINTED WIRING BOARD ASSEMBLIES (NOT REPLACEMENT ITEM)

#### 20F630

PWB-A DUNTKB989WEA0	-	MAIN Unit	—
PWB-B DUNTKA599WEB4	-	CRT Unit	—
PWB-E DUNTKB271FMA3	-	MTS MODULE Unit	—

#### CU20F630

PWB-A DUNTKB989WEA1	-	MAIN Unit	—
PWB-B DUNTKA599WEB5	-	CRT Unit	—
PWB-E DUNTKB271WEA3	-	MTS MODULE Unit	—

# LISTE DES PIECES

## CHANGE DES PIECES

Les pièces de rechange qui présentent ces caractéristiques spéciales de sécurité, sont identifiées dans ce manuel : les pièces électriques qui présentent ces particularités, sont représentées par la marque  $\Delta$  et sont hachurées dans les listes de pièces et dans les diagrammes schématisés.

La substitution d'une pièce de rechange par une autre qui ne présente pas les mêmes caractéristiques de sécurité que la pièce recommandée par l'usine et dans ce manuel de service, peut provoquer une électrocution, un incendie ou tout autre sinistre.

### "COMMENT COMMANDER LES PIECES DE RECHANGE"

Pour que votre commande soit rapidement et correctement remplie, veuillez fournir les renseignements suivants.

- |                     |                |
|---------------------|----------------|
| 1. NUMERO DU MODELE | 2. NO. DE REF  |
| 3. NO. DE PIECE     | 4. DESCRIPTION |

in **CANADA**: Contact SHARP Electronics of Canada Limited  
Phone (416) 890-2100

★ MARQUE: SECTION LIVRAISON DES PIECES DE RECHANGE

▲ MARQUE: PIECES RELATIVE AUX RAYONS X

Ref. No.	Part No.	★	Description	Code
<b>DUNTKB989WEA0(20F630) DUNTKB989WEA1(CU20F630) PWB-A MAIN UNIT</b>				

#### TUNER

**NOTE: THE PARTS HERES SHOWN ARE SUPPLIED AS AN ASSEMBLY BUT NOT INDEPENDENTLY.**

$\Delta$  TU201 RTUNQA003WJZZ X Tuner

#### INTEGRATED CIRCUIT

IC301	VHiAN7522++-1	X	AN7522	
IC401	VHiMM1501XN-1*	X	MM1501XNRE	
$\Delta$ IC501	VHiTDA9302H-1	X	TDA9302H	
IC601	VHiKA7809AP-1	X	KIA7809API	
$\Delta$ IC701	VHiTEA1507/-1	X	TEA1507P/N1	AE
$\Delta$ IC703	VHiSE130N//1	X	SE130N	AF
IC801	VHiM61251AF1EQ	X	I.C.	
IC1001	RH-iXA155WJN4	X	I.C.	
IC1003	VHiBR2416E2-1*	X	BR24C16F(20F630)	AD
IC1003	VHiCAT24W04-2*	X	I.C.(CU20F630)	

#### TRANSISTORS

Q201	VS2SC2735//1E*	X	2SC2735	AB
Q302	VS2SD601AR/-1*	X	2SD601AR	AA
Q601	VS2SC2482//1+	X	2SC2482	AB
Q602	VS2SD2539//1E	X	2SD2539	
Q603	VS2SC3198-G-1+	X	2SC3198-G	AB
Q604	VS2SD601AR/-1*	X	2SD601AR	AA
$\Delta$ Q701	VSSTP6NC80Z1E	X	STP6NC80Z	
Q703	VS2SC3198-Y-1+	X	2SC3198-Y	
Q740	VS2SD601AR/-1*	X	2SD601AR	AA
Q741	VS2SD601AR/-1*	X	2SD601AR	AA
Q751	VS2SC2236Y/-1+	X	2SC2236Y	
Q752	VS2SC2236Y/-1+	X	2SC2236Y	
Q753	VS2SC3198-G-1+	X	2SC3198-G	AB
Q755	VS2SD601AR/-1*	X	2SD601AR	AA
Q804	VS2SB709AR/-1*	X	2SB709AR	AA
Q805	VS2SD601AR/-1*	X	2SD601AR	AA
Q1001	VS2SD601AR/-1*	X	2SD601AR	AA

#### DIODES

D201	RH-EX0676GEZZ*	X	Zener Diode, 33V	AB
D203	RH-DX0048GEZZ*	X	DX0048GE	
D393	RH-DX0247CEZZ*	X	DX0247CE	
D501	RH-EX1393CEZZ*	X	Zener Diode, 5.1V	

Ref. No.	Part No.	★	Description	Code	Ref. No.	Part No.	★	Description	Code
D502	RH-EX0652GEZZ*	X	Zener Diode, 18V		C202	VCEA0A0JW477M+ X	470	6.3V	Electrolytic
D503	RH-EX0612GEZZ*	X	Zener Diode, 5.1V		C203	VCKYCY1HF103Z* X	0.01	50V	Ceramic AA
D504	RH-EX0654CEZZ*	X	Zener Diode		C204	VCEA0A0JW477M+ X	470	6.3V	Electrolytic
D505	RH-DX0441CEZZ*	X	DX0441CE	AA	C205	VCKYCY1HF103Z* X	0.01	50V	Ceramic AA
D510	RH-DX0131CEZZ*	X	DX0131CE	AB	C206	VCEA0A1HW106M+X	10	50V	Electrolytic AA
D601	RH-DX0048GEZZ*	X	DX0048GE		C207	VCKYCY1HF103Z* X	0.01	50V	Ceramic AA
D602	VHD1SS244/-1*	X	1SS244	AA	C208	VCKYCY1HF103Z* X	0.01	50V	Ceramic AA
D603	RH-EX0662GEZZ*	X	Zener Diode, 24V		C209	VCKYCY1HF103Z* X	0.01	50V	Ceramic AA
D606	RH-DX0131CEZZ*	X	DX0131CE	AB	C210	VCKYCY1HF103Z* X	0.01	50V	Ceramic AA
D608	RH-DX0131CEZZ*	X	DX0131CE	AB	C213	VCKYCY1HB102K* X	1000p	50V	Ceramic AA
△ D701	RH-DX0111PEZZ*	X	DX0111PE		C301	VCEA0A1CW477M+X	470	16V	Electrolytic AB
D703	RH-DX0048GEZZ*	X	DX0048GE		C304	VCEA0A1CW106M+X	10	16V	Electrolytic
D704	RH-EX0650GEZZ*	X	Zener Diode, 16V		C307	VCEA0A1HW474M+X	0.47	50V	Electrolytic AA
D708	RH-DX0048GEZZ*	X	DX0048GE		C308	VCKYCY1HF153Z* X	0.015	50V	Ceramic
D710	RH-DX0048GEZZ*	X	DX0048GE		C310	VCEA0A1HW225M+X	2.2	50V	Electrolytic AA
D750	RH-EX0647CEZZ*	X	Zener Diode, 150V		C311	VCEA0A1HW474M+X	0.47	50V	Electrolytic AA
D751	RH-DX0229CEZZ*	X	DX0229CE		C312	VCEA0A1HW335M+X	3.3	50V	Electrolytic
D752	RH-DX0131CEZZ*	X	DX0131CE	AB	C313	VCKYCY1HF153Z* X	0.015	50V	Ceramic
D755	RH-DX0048GEZZ*	X	DX0048GE		C321	VCEA0A1HW335M+X	3.3	50V	Electrolytic
D756	RH-DX0441CEZZ*	X	DX0441CE	AA	C322	VCEA0A1HW105M+X	1	50V	Electrolytic AA
D801	RH-EX0613GEZZ*	X	Zener Diode, 5.1V		C377	VCEA0A1CW107M+X	100	16V	Electrolytic AA
D806	RH-DX0048GEZZ*	X	DX0048GE		C391	VCKYPA1HB102K+ X	1000p	50V	Ceramic AA
D807	RH-EX0625GEZZ*	X	Zener Diode, 8V		C392	VCQYTA1HM103J+ X	0.01	50V	Mylar AA
D808	RH-DX0048GEZZ*	X	DX0048GE		C393	VCEA0A1EW108M+X	1000	25V	Electrolytic AB
D810	RH-EX0263TAZZ*	X	Zener Diode, 8.1V		C434	VCEA0A1CW106M+X	10	16V	Electrolytic
D811	RH-EX0263TAZZ*	X	Zener Diode, 8.1V		C435	VCE9GA1CW106M+X	10	16V	Electrolytic AB
D812	RH-EX0263TAZZ*	X	Zener Diode, 8.1V		C436	VCKYCY1HF103Z* X	0.01	50V	Ceramic AA
D813	RH-EX1393CEZZ*	X	Zener Diode, 5.1V		C452	VCEA9M1CW106M+ X	10	16V	Electrolytic
D815	RH-EX0263TAZZ*	X	Zener Diode, 8.1V		C505	VCEA0A1HW107M+X	100	50V	Electrolytic
D1004	RH-EX1393CEZZ*	X	Zener Diode, 5.1V		C508	VCFYAA2AA224J+ X	0.22	100V	Mylar
D1081	RH-DX0048GEZZ*	X	DX0048GE		C509	VCKYD41CY103N* X	0.01	16V	Ceramic
D1085	RH-EX1393CEZZ*	X	Zener Diode, 5.1V		C511	VCEA0A1VW477M+X	470	35V	Electrolytic AB
D1086	RH-EX1393CEZZ*	X	Zener Diode, 5.1V		C512	VCKYPA2HB102K+ X	1000p	500V	Ceramic AB
D1087	RH-EX1393CEZZ*	X	Zener Diode, 5.1V		C513	VCEA0A1VW108M+X	1000	35V	Electrolytic AB
D1088	RH-EX1393CEZZ*	X	Zener Diode, 5.1V		C514	VCFYSA1JB273J+ X	0.027	63V	Mylar
D1089	RH-EX0613GEZZ*	X	Zener Diode, 5.1V		C515	VCEACA1HC335J+ X	3.3	50V	Electrolytic
D1090	RH-EX1393CEZZ*	X	Zener Diode, 5.1V		C518	VCKYCY1HF103Z* X	0.01	50V	Ceramic AA
D1091	RH-DX0048GEZZ*	X	DX0048GE		C519	VCKYCY1HB102K* X	1000p	50V	Ceramic AA
△ IC702	RH-FXA003WJZZ	X	PC123Y82	AB	C601	VCQYTA1HM563J+ X	0.056	50V	Mylar
VA701	RH-VXA009WJZZ	X	VXA009WJ	AB	C602	VCEA0A1HW475M+X	4.7	50V	Electrolytic AA
<b>PACKAGED CIRCUITS</b>					C603	VCEA0A1HW105M+X	1	50V	Electrolytic AA
PR702	RMPTP0092CEZZ	X	Packaged Circuit	AD	C604	VCEA0A2EW336M+X	33	250V	Electrolytic AB
X801	RCRSAA009WJZZ	X	Crystal		C605	VCKYPA2HB102K+ X	1000p	500V	Ceramic AB
<b>FILTERS</b>					C606	VCKYPA2HB102K+ X	1000p	500V	Ceramic AB
CF201	RFILC0447CEZZ	X	Filter, FiLC0447CE		△ C607	VCFPVC3ZA902H X	9000p	1800V	
CF802	RFILC0446CEZZ	X	Filter, FiLC0446CE						Metallized Polypro Film
SF201	RFILC0405CEZZ	X	Filter, FiLC0405CE	AD	C608	VCKYPA2HB561K+ X	560p	500V	Ceramic AB
<b>COILS</b>					C610	VCFYSB2EB823J X	0.082	250V	Mylar AB
L202	VP-CF270K0000*	X	Peaking, 27μH		C611	VCFPVC2DB244J X	0.24	200V	
L203	VP-DF270K0000*	X	Peaking, 27μH						Metallized Polypro Film
L204	VP-XF1R2K0000*	X	Peaking, 1.2μH	AA	C641	VCEA0A1EW108M+X	1000	25V	Electrolytic AB
L602	RCiLP0223CEZZ	X	Coil		C642	VCEA0A1EW476M+X	47	25V	Electrolytic AA
L603	RCiLZA006WJZZ	X	Coil		C643	VCEA0A1CW477M+X	470	16V	Electrolytic AB
△ L701	RCiLF0078PEZZ	X	Coil		C650	VCKYPA2HB101K+ X	100p	500V	Ceramic
△ L703	RCiLF0078PEZZ	X	Coil		△ C701	RC-FZ029SCEZZ X	0.22	AC125V	Plastic
L751	RCiLP0225CEZZ	X	Coil		C702	RC-KZ0029CEZZ+ X	0.01	250V	Ceramic AB
L801	VP-DF100K0000*	X	Peaking, 10μH		C703	RC-KZ0029CEZZ+ X	0.01	250V	Ceramic AB
L802	VP-DF100K0000*	X	Peaking, 10μH		C705	RC-EZA070WJZZ X	470	200V	Electrolytic
L803	VP-DF100K0000*	X	Peaking, 10μH		C706	VCQYTA1HM103J+ X	0.01	50V	Mylar AA
L804	VP-XF150K0000*	X	Peaking, 15μH		△ C711	RCFYFA1HA334J+ X	0.33	50V	Mylar AB
L806	VP-DF100K0000*	X	Peaking, 10μH		C713	RC-KZ016SCEZZ X	470p	250V	Ceramic
L807	VP-XF1R2K0000*	X	Peaking, 1.2μH	AA	C718	VCKYPA2HB472K+ X	4700p	500V	Ceramic AB
L1861	VP-XF8R2K0000*	X	Peaking, 8.2μH	AA	C737	VCEA0A1EW226M+X	22	25V	Electrolytic
L1862	VP-XF8R2K0000*	X	Peaking, 8.2μH	AA	C738	RC-KZ0040CEZZ X	820p	2kV	Ceramic
<b>TRANSFORMERS</b>					C743	VCKYPH3DB561K X	560p	2000V	Ceramic
△ T601	RTRNZ0026PEZZ	X	Transformer		C744	VCQYTA1HM104J+ X	0.1	50V	Mylar AB
△△ T602	RTRNFA012WJZZ	X	H-Volt Transformer		C751	RC-KZ0106GEZZ X	3300p	AC250V	Ceramic
△ T701	RTRNWA036WJZZ	X	Transformer		C752	VCKYPH3DB561K X	560p	2000V	Ceramic
<b>CAPACITORS</b>					C753	RC-EZ0724CEZZ X	100	160V	Electrolytic AC
C201	VCEA0A1CW476M+X	47	16V	Electrolytic AA	C754	RC-EZ0638CEZZ X	33	160V	Electrolytic



Ref. No.	Part No.	★	Description	Code	Ref. No.	Part No.	★	Description	Code
C802	VCKYCY1HF103Z*	X 0.01	50V Ceramic	AA	RJ19	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA
C803	VCEA0A1AW476M+X	47	10V Electrolytic		RJ22	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA
C804	VCKYCY1HF103Z*	X 0.01	50V Ceramic	AA	RJ23	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA
C805	VCEA0A1HW105M+X	1	50V Electrolytic	AA	RJ33	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA
C806	VCKYCY1HF103Z*	X 0.01	50V Ceramic	AA	RJ35	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA
C807	VCEA0A1CW337M+X	330	16V Electrolytic		RJ37	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA
C808	VCKYCY1HF103Z*	X 0.01	50V Ceramic	AA	RJ39	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA
C809	VCKYCY1HF103Z*	X 0.01	50V Ceramic	AA	RJ41	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA
C810	VCKYCY1HF103Z*	X 0.01	50V Ceramic	AA	RJ42	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA
C811	VCKYCY1EF104Z*	X 0.1	25V Ceramic		RJ43	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA
C812	VCKYCY1EF104Z*	X 0.1	25V Ceramic		RJ47	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA
C813	VCKYCY1EF104Z*	X 0.1	25V Ceramic		RJ50	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA
C814	VCKYCY1HF103Z*	X 0.01	50V Ceramic	AA	RJ51	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA
C815	VCKYCY1HF103Z*	X 0.01	50V Ceramic	AA	RJ52	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA
C816	VCKYCY1EF104Z*	X 0.1	25V Ceramic		RJ53	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA
C817	VCEA0A1AW107M+X	100	10V Electrolytic	AA	RJ60	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA
C818	VCEA0A1HW475M+ X	4.7	50V Electrolytic	AA	RJ62	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA
C819	VCCCY1HH121J*	X 120p	50V Ceramic		RJ63	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA
C820	VCEA0A1HW474M+X	0.47	50V Electrolytic	AA	RJ65	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA
C821	VCKYCY1HF153Z*	X 0.015	50V Ceramic		RJ69	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA
C822	VCE9GA1HW105M+X	1	50V Electrolytic	AB	RJ70	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA
C823	VCKYCY1HF103Z*	X 0.01	50V Ceramic	AA	RJ71	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA
C824	VCEA0A1CW337M+X	330	16V Electrolytic		RJ72	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA
C825	VCE9EM1HW105M+ X	1	50V Electrolytic		RJ75	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA
C826	VCKYPA1HF103Z+ X	0.01	50V Ceramic	AA	RJ76	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA
C827	VCEA9M1CW476M+ X	47	16V Electrolytic		C211	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA
C828	VCKYPA1HB103K+ X	0.01	50V Ceramic		R201	VRS-CY1JF101J*	X 100	1/16W Metal Oxide	AA
C829	VCEA0A1CW476M+X	47	16V Electrolytic	AA	R202	VRS-CY1JF101J*	X 100	1/16W Metal Oxide	AA
C831	VCKYCY1EF104Z*	X 0.1	25V Ceramic		R205	VRS-CY1JF680J*	X 68	1/16W Metal Oxide	AA
C833	VCKYCY1EF104Z*	X 0.1	25V Ceramic		R206	VRS-CY1JF122J*	X 1.2k	1/16W Metal Oxide	AA
C834	VCEA0A1CW107M+X	100	16V Electrolytic	AA	R207	VRS-CY1JF221J*	X 220	1/16W Metal Oxide	AA
C835	VCEA0A1CW106M+X	10	16V Electrolytic		R208	VRS-CY1JF331J*	X 330	1/16W Metal Oxide	AA
C836	VCKYCY1HF103Z*	X 0.01	50V Ceramic	AA	R209	VRS-CY1JF392J*	X 3.9k	1/16W Metal Oxide	AA
C837	VCEA0A1HW105M+X	1	50V Electrolytic	AA	R216	VRS-VV3LB333J	X 33k	3W Metal Oxide	
C839	VCCCY1HH680J*	X 68p	50V Ceramic	AA	R220	VRS-CY1JF221J*	X 220	1/16W Metal Oxide	AA
C840	VCKYCY1EF104Z*	X 0.1	25V Ceramic		R301	VRS-CY1JF102J*	X 1k	1/16W Metal Oxide	AA
C841	VCCCY1HH101J*	X 100p	50V Ceramic	AA	R302	VRN-VV3DB1R2J	X 1.2	2W Metal Film	
C842	VCEA9M1HW474M+ X	0.47	50V Electrolytic		R303	VRS-CY1JF103J*	X 10k	1/16W Metal Oxide	AA
C843	VCEA9M1HW105M+ X	1	50V Electrolytic		R304	VRD-RA2BE683J*	X 68k	1/8W Carbon	AA
C845	VCKYCY1CF224Z*	X 0.22	16V Ceramic		R305	VRS-CY1JF274J*	X 270k	1/16W Metal Oxide	
C846	VCKYCY1HF103Z*	X 0.01	50V Ceramic	AA	R307	VRS-CY1JF222J*	X 2.2k	1/16W Metal Oxide	AA
C847	VCCCY1HH220J*	X 22p	50V Ceramic		R308	VRS-CY1JF392J*	X 3.9k	1/16W Metal Oxide	AA
C848	VCEA0A1HW105M+X	1	50V Electrolytic	AA	R310	VRS-CY1JF473J*	X 47k	1/16W Metal Oxide	AA
C1001	VCEA0A0JW107M+ X	100	6.3V Electrolytic		R311	VRD-RA2BE272J*	X 2.7k	1/8W Carbon	AA
C1003	VCEA0A1CW106M+X	10	16V Electrolytic		R314	VRS-CY1JF392J*	X 3.9k	1/16W Metal Oxide	AA
C1004	VCKYCY1CF474Z*	X 0.47	16V Ceramic		R315	VRS-CY1JF222J*	X 2.2k	1/16W Metal Oxide	AA
C1006	VCEA0A1HW225M+X	2.2	50V Electrolytic	AA	R362	VRS-CY1JF332J*	X 3.3k	1/16W Metal Oxide	AA
C1007	VCEA0A1CW107M+X	100	16V Electrolytic	AA	R363	VRS-CY1JF564J*	X 560k	1/16W Metal Oxide	AA
C1008	VCKYCY1HF103Z*	X 0.01	50V Ceramic	AA	R364	VRS-CY1JF332J*	X 3.3k	1/16W Metal Oxide	AA
C1009	VCKYCY1HF103Z*	X 0.01	50V Ceramic	AA	R365	VRS-CY1JF564J*	X 560k	1/16W Metal Oxide	AA
C1011	VCKYCY1HB221K*	X 220p	50V Ceramic		R381	VRS-CY1JF564J*	X 560k	1/16W Metal Oxide	AA
C1012	VCEA0A1HW105M+X	1	50V Electrolytic	AA	R382	VRS-CY1JF332J*	X 3.3k	1/16W Metal Oxide	AA
C1013	VCKYCY1HB102K*	X 1000p	50V Ceramic	AA	R383	VRS-CY1JF564J*	X 560k	1/16W Metal Oxide	AA
C1014	VCEA0A1HW475M+X	4.7	50V Electrolytic	AA	R384	VRS-CY1JF332J*	X 3.3k	1/16W Metal Oxide	AA
C1015	VCCCY1HH101J*	X 100p	50V Ceramic	AA	R431	VRS-CY1JF101J*	X 100	1/16W Metal Oxide	AA
C1081	VCEA0A1HW104M+X	0.1	50V Electrolytic		R432	VRS-CY1JF750J*	X 75	1/16W Metal Oxide	AA
C1849	VCFYFA1HA223J+ X	0.022	50V Mylar		R433	VRS-CY1JF750J*	X 75	1/16W Metal Oxide	AA
C1855	VCKYCY1HB561K*	X 560p	50V Ceramic		R434	VRS-CY1JF750J*	X 75	1/16W Metal Oxide	AA
C1856	VCKYCY1HB102K*	X 1000p	50V Ceramic	AA	R435	VRS-CY1JF750J*	X 75	1/16W Metal Oxide	AA
C1861	VCCCY1HH221J*	X 220p	50V Ceramic		R437	VRS-CY1JF101J*	X 100	1/16W Metal Oxide	AA
C1862	VCKYCY1HB102K*	X 1000p	50V Ceramic	AA	R461	VRS-CY1JF750J*	X 75	1/16W Metal Oxide	AA
C1863	VCCCY1HH221J*	X 220p	50V Ceramic		R462	VRS-CY1JF101J*	X 100	1/16W Metal Oxide	AA
C1864	VCKYCY1HB102K*	X 1000p	50V Ceramic	AA	R502	VRS-RG3AB102J+	X 1k	1W Metal Oxide	
<b>RESISTORS</b>					R503	VRN-RL3DB1R2J+	X 1.2	2W Metal Film	AB
RJ1	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA	R504	VRS-CY1JF222J*	X 2.2k	1/16W Metal Oxide	AA
RJ3	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA	R506	VRS-RG3AB331J+	X 330	1W Metal Oxide	
RJ7	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA	R507	VRD-RM2HD1R0J*	X 1	1/2W Carbon	AA
RJ9	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA	R513	VRD-RM2HD333J*	X 33k	1/2W Carbon	
RJ10	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA	R514	VRD-RM2HD682J*	X 6.8k	1/2W Carbon	
RJ11	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA	R520	VRS-CY1JF123J*	X 12k	1/16W Metal Oxide	AA
RJ13	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA	R522	VRS-CY1JF101J*	X 100	1/16W Metal Oxide	AA
RJ14	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA	R523	VRD-RA2BE101J*	X 100	1/8W Carbon	AA
RJ15	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA	R524	VRD-RA2BE103J*	X 10k	1/8W Carbon	AA
RJ16	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA	R525	VRD-RA2BE122J*	X 1.2k	1/8W Carbon	AA
RJ17	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA	R526	VRD-RA2BE101J*	X 100	1/8W Carbon	AA
					R528	VRS-CY1JF683J*	X 68k	1/16W Metal Oxide	AA

Ref. No.	Part No.	★	Description	Code	Ref. No.	Part No.	★	Description	Code
R602	VRD-RA2BE393J*	X	39k 1/8W Carbon		R833	VRS-CY1JF101J*	X	100 1/16W Metal Oxide	AA
R603	VRD-RA2BE273J*	X	27k 1/8W Carbon		R835	VRS-CY1JF332J*	X	3.3k 1/16W Metal Oxide	AA
R604	VRD-RA2BE473J*	X	47k 1/8W Carbon	AA	R836	VRD-RA2BE470J*	X	47 1/8W Carbon	AA
R605	VRD-RM2HD104J*	X	100k 1/2W Carbon	AA	R838	VRS-CY1JF105J*	X	1M 1/16W Metal Oxide	AA
R606	VRN-RL3LBR27J+	X	0.27 3W Metal Film		R839	VRS-CY1JF101J*	X	100 1/16W Metal Oxide	AA
△ R608	VRD-RM2HD102J*	X	1k 1/2W Carbon		R840	VRS-CY1JF124J*	X	120k 1/16W Metal Oxide	
△ R611	VRN-RL3ABR27J+	X	0.27 1W Metal Film	AB	R841	VRD-RA2BE821J*	X	820 1/8W Carbon	
△ R612	VRD-RM2HD270J*	X	27 1/2W Carbon	AA	R842	VRS-CY1JF471J*	X	470 1/16W Metal Oxide	AA
R613	VRS-CY1JF000J*	X	0 1/16W Metal Oxide	AA	R843	VRS-CY1JF103J*	X	10k 1/16W Metal Oxide	AA
R614	VRD-RA2BE154J*	X	150k 1/8W Carbon		R844	VRS-CY1JF185J*	X	1.8M 1/16W Metal Oxide	
R615	VRD-RA2BE102J*	X	1k 1/8W Carbon	AA	R845	VRS-CY1JF185J*	X	1.8M 1/16W Metal Oxide	
R616	VRD-RA2BE102J*	X	1k 1/8W Carbon	AA	R1002	VRS-CY1JF183J*	X	18k 1/16W Metal Oxide	AA
R617	VRS-CY1JF123J*	X	12k 1/16W Metal Oxide	AA	R1003	VRS-CY1JF822J*	X	8.2k 1/16W Metal Oxide	AA
R618	VRS-CY1JF103J*	X	10k 1/16W Metal Oxide	AA	R1006	VRS-CY1JF822J*	X	8.2k 1/16W Metal Oxide	AA
△ R621	VRN-RL2HC4R7J+	X	4.7 1/2W Metal Film		R1007	VRS-CY1JF103J*	X	10k 1/16W Metal Oxide	AA
R622	VRS-VV3DB682J*	X	6.8k 2W Metal Oxide		R1008	VRS-CY1JF183J*	X	18k 1/16W Metal Oxide	AA
R631	VRS-KT3LB391J	X	390 3W Metal Oxide		R1009	VRS-CY1JF103J*	X	10k 1/16W Metal Oxide	AA
R632	VRS-RG3LB122J+	X	1.2k 3W Metal Oxide		R1021	VRS-CY1JF101J*	X	100 1/16W Metal Oxide	AA
△ R633	VRS-KA3NG3R3K	X	3.3 7W Metal Oxide	AB	R1022	VRS-CY1JF101J*	X	100 1/16W Metal Oxide	AA
R637	VRD-RA2BE331J*	X	330 1/8W Carbon	AA	R1023	VRD-RA2BE271J*	X	270 1/8W Carbon	AA
R638	VRD-RA2BE331J*	X	330 1/8W Carbon	AA	R1024	VRS-CY1JF101J*	X	100 1/16W Metal Oxide	AA
R639	VRD-RM2HD562J*	X	5.6k 1/2W Carbon	AA	R1026	VRS-CY1JF000J*	X	0 1/16W Metal Oxide	AA
R642	VRD-RM2HD470J*	X	47 1/2W Carbon	AA	R1027	VRS-CY1JF104J*	X	100k 1/16W Metal Oxide	AA
R643	VRS-KA3HG912J	X	9.1k 5W Metal Oxide		R1031	VRS-CY1JF101J*	X	100 1/16W Metal Oxide	AA
R661	VRS-CY1JF102J*	X	1k 1/16W Metal Oxide	AA	R1032	VRS-CY1JF103J*	X	10k 1/16W Metal Oxide	AA
R662	VRS-CY1JF103J*	X	10k 1/16W Metal Oxide	AA	R1034	VRS-CY1JF103J*	X	10k 1/16W Metal Oxide	AA
R701	VRW-KQ3NC1R5K	X	1.5 7W Cement		R1035	VRD-RA2BE101J*	X	100 1/8W Carbon	AA
R702	VRD-RM2HD100J*	X	10 1/2W Carbon	AA	R1036	VRS-CY1JF103J*	X	10k 1/16W Metal Oxide	AA
R705	VRN-VV3DBR33J	X	0.33 2W Metal Film		R1037	VRS-CY1JF103J*	X	10k 1/16W Metal Oxide	AA
R706	VRN-VV3DBR33J	X	0.33 2W Metal Film		R1038	VRS-CY1JF562J*	X	5.6k 1/16W Metal Oxide	AA
R707	VRD-RM2HD270J*	X	27 1/2W Carbon	AA	R1039	VRS-CY1JF102J*	X	1k 1/16W Metal Oxide	AA
R708	VRD-RA2BE102J*	X	1k 1/8W Carbon	AA	R1040	VRD-RA2BE273J*	X	27k 1/8W Carbon	
R710	VRS-RG2HC103J+	X	10k 1/2W Metal Oxide	AB	R1041	VRD-RA2BE103J*	X	10k 1/8W Carbon	AA
R711	VRD-RA2BE394J*	X	390k 1/8W Carbon		R1042	VRD-RA2BE101J*	X	100 1/8W Carbon	AA
R713	VRD-RM2HD122J*	X	1.2k 1/2W Carbon		R1043	VRS-CY1JF104J*	X	100k 1/16W Metal Oxide	AA
R715	VRD-RA2BE150J*	X	15 1/8W Carbon		R1045	VRD-RA2BE101J*	X	100 1/8W Carbon	AA
R716	VRD-RA2BE223J*	X	22k 1/8W Carbon	AA	R1046	VRS-CY1JF101J*	X	100 1/16W Metal Oxide	AA
R717	RR-DZ0049CEZZ*	X	3.9M 1/2W	AB	R1047	VRS-CY1JF183J*	X	18k 1/16W Metal Oxide	AA
R725	VRD-RM2HD821J*	X	820 1/2W Carbon	AA	R1048	VRS-CY1JF101J*	X	100 1/16W Metal Oxide	AA
R726	VRN-RL2HCR47J+	X	0.47 1/2W Metal Film		R1049	VRS-CY1JF183J*	X	18k 1/16W Metal Oxide	AA
R742	VRD-RA2BE183J*	X	18k 1/8W Carbon	AA	R1051	VRS-CY1JF101J*	X	100 1/16W Metal Oxide	AA
R743	VRS-CY1JF332J*	X	3.3k 1/16W Metal Oxide	AA	R1052	VRS-CY1JF104J*	X	100k 1/16W Metal Oxide	AA
R744	VRS-CY1JF332J*	X	3.3k 1/16W Metal Oxide	AA	R1053	VRS-CY1JF101J*	X	100 1/16W Metal Oxide	AA
R745	VRD-RA2BE472J*	X	4.7k 1/8W Carbon	AA	R1054	VRS-CY1JF101J*	X	100 1/16W Metal Oxide	AA
R746	VRD-RA2BE223J*	X	22k 1/8W Carbon	AA	R1059	VRS-CY1JF103J*	X	10k 1/16W Metal Oxide	AA
R753	VRD-RM2HD124J*	X	120k 1/2W Carbon	AA	R1061	VRS-CY1JF102J*	X	1k 1/16W Metal Oxide	AA
R754	VRN-RL3DB8R2J+	X	8.2 2W Metal Film		R1062	VRS-CY1JF105J*	X	1M 1/16W Metal Oxide	AA
R755	VRS-RG3DB150J+	X	15 2W Metal Oxide		R1063	VRS-CY1JF103J*	X	10k 1/16W Metal Oxide	AA
R756	VRS-RG3DB121J+	X	120 2W Metal Oxide		R1064	VRS-CY1JF103J*	X	10k 1/16W Metal Oxide	AA
R759	VRS-RG3DB101J+	X	100 2W Metal Oxide		R1065	VRS-CY1JF103J*	X	10k 1/16W Metal Oxide	AA
R766	VRS-CY1JF333J*	X	33k 1/16W Metal Oxide	AA	R1066	VRS-CY1JF561J*	X	560 1/16W Metal Oxide	
R767	VRD-RA2BE103J*	X	10k 1/8W Carbon	AA	R1067	VRS-CY1JF152J*	X	1.5k 1/16W Metal Oxide	AA
R768	VRS-CY1JF332J*	X	3.3k 1/16W Metal Oxide	AA	R1068	VRS-CY1JF331J*	X	330 1/16W Metal Oxide	AA
R802	VRS-CY1JF682J*	X	6.8k 1/16W Metal Oxide	AA	R1069	VRS-CY1JF152J*	X	1.5k 1/16W Metal Oxide	AA
R803	VRS-CY1JF103J*	X	10k 1/16W Metal Oxide	AA	R1070	VRS-CY1JF331J*	X	330 1/16W Metal Oxide	AA
R804	VRS-CY1JF222J*	X	2.2k 1/16W Metal Oxide	AA	R1071	VRS-CY1JF152J*	X	1.5k 1/16W Metal Oxide	AA
R805	VRS-CY1JF222J*	X	2.2k 1/16W Metal Oxide	AA	R1072	VRS-CY1JF221J*	X	220 1/16W Metal Oxide	AA
R806	VRS-CY1JF222J*	X	2.2k 1/16W Metal Oxide	AA	R1073	VRS-CY1JF101J*	X	100 1/16W Metal Oxide	AA
R807	VRS-CY1JF222J*	X	2.2k 1/16W Metal Oxide	AA	R1074	VRS-CY1JF103J*	X	10k 1/16W Metal Oxide	AA
R808	VRD-RA2BE273J*	X	27k 1/8W Carbon		R1075	VRS-CY1JF331J*	X	330 1/16W Metal Oxide	AA
R810	VRS-CY1JF101J*	X	100 1/16W Metal Oxide	AA	R1076	VRS-CY1JF102J*	X	1k 1/16W Metal Oxide	AA
R812	VRS-CY1JF101J*	X	100 1/16W Metal Oxide	AA	R1081	VRS-CY1JF103J*	X	10k 1/16W Metal Oxide	AA
R814	VRS-CY1JF473J*	X	47k 1/16W Metal Oxide	AA	R1849	VRS-CY1JF222J*	X	2.2k 1/16W Metal Oxide	AA
R815	VRS-CY1JF473J*	X	47k 1/16W Metal Oxide	AA	R1850	VRS-CY1JF472J*	X	4.7k 1/16W Metal Oxide	AA
R816	VRS-CY1JF223J*	X	22k 1/16W Metal Oxide	AA	R1851	VRS-CY1JF221J*	X	220 1/16W Metal Oxide	AA
R817	VRS-CY1JF473J*	X	47k 1/16W Metal Oxide	AA	R1852	VRS-CY1JF221J*	X	220 1/16W Metal Oxide	AA
R818	VRS-RG3AB151J+	X	150 1W Metal Oxide		R1853	VRS-CY1JF221J*	X	220 1/16W Metal Oxide	AA
R823	VRD-RA2BE101J*	X	100 1/8W Carbon	AA	R1854	VRS-CY1JF103J*	X	10k 1/16W Metal Oxide	AA
R824	VRD-RA2BE101J*	X	100 1/8W Carbon	AA	R1855	VRD-RA2BE102J*	X	1k 1/8W Carbon	AA
R826	VRD-RA2BE101J*	X	100 1/8W Carbon	AA	R1861	VRS-CY1JF121J*	X	120 1/16W Metal Oxide	
R827	VRS-CY1JF102J*	X	1k 1/16W Metal Oxide	AA	R1862	VRS-CY1JF121J*	X	120 1/16W Metal Oxide	
R828	VRS-CY1JF471J*	X	470 1/16W Metal Oxide	AA	<b>SWITCHES</b>				
R829	VRS-CY1JF472J*	X	4.7k 1/16W Metal Oxide	AA					
R830	VRS-CY1JF393J*	X	39k 1/16W Metal Oxide	AA					
R831	VRS-CY1JF271J*	X	270 1/16W Metal Oxide						
R832	VRS-CY1JF822J*	X	8.2k 1/16W Metal Oxide	AA	S1001	QSW-K0202PEZZ+	X	Switch, CH-UP	
					S1002	QSW-K0202PEZZ+	X	Switch, CH-DOWN	
					S1003	QSW-K0202PEZZ+	X	Switch, VOL.-UP	



Ref. No.	Part No.	★	Description	Code	Ref. No.	Part No.	★	Description	Code
S1004	QSW-K0202PEZZ+	X	Switch, VOL.-DOWN		△ R859	VRS-VV3DB123J	X	12k 2W	Metal Oxide
S1005	QSW-K0202PEZZ+	X	Switch, MENU		△ R861	VRS-VV3DB123J	X	12k 2W	Metal Oxide
S1006	QSW-K0114CEZZ	X	Switch, POWER		△ R863	VRS-VV3DB123J	X	12k 2W	Metal Oxide
<b>BALUN</b>					R864	VRD-RA2BE470J*	X	47 1/8W	Carbon AA
FB701	RBLN-0020CEZZ+	X	Balun, BLN-0020CE	AB	R876	VRD-RA2BE121J*	X	120 1/8W	Carbon AA
<b>MISCELLANEOUS PARTS</b>					R877	VRD-RA2BE121J*	X	120 1/8W	Carbon AA
△ ACC701	QACCD A015WJPZ	X	AC Cord		R878	VRD-RA2BE121J*	X	120 1/8W	Carbon AA
△ F701	QFS-B4023CEZZ	X	Fuse, 4A/125V	AB	R880	VRD-RM2HD332J*	X	3.3k 1/2W	Carbon
FH701	QFSDH1013CEZZ+	X	Fuse Holder	AA	R881	VRD-RM2HD332J*	X	3.3k 1/2W	Carbon
FH702	QFSDH1014CEZZ+	X	Fuse Holder	AA	R882	VRD-RM2HD332J*	X	3.3k 1/2W	Carbon
J401	QJAKGA015WJZZ	X	Jack, 9Pin		R889	VRD-RA2BE821J*	X	820 1/8W	Carbon
J402	QJAKE0108CEZZ	X	Jack, 3Pin		R891	VRD-RA2BE561J*	X	560 1/8W	Carbon AA
J403	QJAKE0183CEZZ	X	Jack, 3Pin		R892	VRD-RA2BE391J*	X	390 1/8W	Carbon
J404	QJAKE0184CEZZ	X	Jack, 3Pin		R894	VRD-RA2BE152J*	X	1.5k 1/8W	Carbon AA
J405	QJAKG0093CEZZ	X	Rear AV In Jack		R895	VRD-RA2BE561J*	X	560 1/8W	Carbon AA
J406	QJAKFA008WJZZ	X	Jack		<b>MISCELLANEOUS PARTS</b>				
P310	QCNW-A482WJZZ	X	Connecting Cord, 7Pin(DF)		P860	QPLGN0461CEZZ	X	Plug, 4Pin(H)	
P302	QPLGN0461CEZZA	X	Plug, 4pin(S)	AB	P880	QPLGN0561CEZZ	X	Plug, 5Pin(K)	
P407	QPLGN0361CEZZA	X	Plug, 3Pin(WF)	AB	SC851	QSOCV0933CEZZ	X	Socket, 12Pin	
P601	QPLGN0660CEZZ	X	Plug, 6Pin(K1-6)		<b>DUNTKB271FMA3(20F630) DUNTKB271WEA3(CU20F630) PWB-E MTS MODULE UNIT</b>				
P602	QPLGN0461CEZZA	X	Plug, 4Pin(H)	AB					
P603	QPLGN0361CEZZA	X	Plug, 3Pin(TP651-3)	AB					
P701	QPLGN0260CEZZ	X	Plug, 2Pin(M1-2)	AB	<b>INTEGRATED CIRCUITS</b>				
P705	QTIPM0083CEZZ	X	Tip		IC3001	VHiCXA2074Q-1S	X	CXA2074Q	
P1001	QPLGN0561CEZZA	X	Plug, 5Pin(K)	AB	IC3002	VHiMM1501XN-1*	X	MM1501XNRE	
P1002	QPLGN0561CEZZA	X	Plug, 5Pin(BC)	AB	<b>TRANSISTORS</b>				
P1007	QPLGN0461CEZZA	X	Plug, 4Pin(FAV)	AB	Q3001	VS2SD601AR/-1*	X	2SD601AR	AA
P1008	QPLGN0461CEZZA	X	Plug, 4Pin(RAV)	AB	Q3002	VS2SD601AR/-1*	X	2SD601AR	AA
P1011	QPLGN0361CEZZA	X	Plug, 3Pin(FAV)	AB	Q3004	VS2SD601AR/-1*	X	2SD601AR	AA
P1012	QPLGN0361CEZZA	X	Plug, 3Pin(AN)	AB	Q3005	VS2SD601AR/-1*	X	2SD601AR	AA
P1014	QCNW-A482WJZZ	X	Connecting Cord, 7Pin(DF)		Q3006	VS2SD601AR/-1*	X	2SD601AR	AA
RMC1001	RRMCU0222CEZZ	X	Remote Receiver	AD	Q3007	VS2SD601AR/-1*	X	2SD601AR	AA
△ RY701	RRLYJ0093CEZZ	X	Relay		<b>CAPACITORS</b>				
RDA501	PRDARA010WJFW	X	Heat Sink for IC501		C3001	VCE9GA1HW475M+X	4.7	50V	Electrolytic AB
RDA602	PRDAR0224PEFW	X	Heat Sink for Q602		C3002	VCKYCY1HB562K*	X	5600p	Ceramic AA
RDA701	PRDARA026WJFW	X	Heat Sink for Q701		C3003	VCQYTA1HM123J+	X	0.012	50V Mylar
	QCNW-A529WJZZ	X	Connecting Cord		C3004	VCEA0A1HW105M+X	1	50V	Electrolytic AA
	QCNW-A625WJZZ	X	Connecting Cord		C3005	VCEA0A1HW475M+X	4.7	50V	Electrolytic AA
<b>DUNTKA599WEB4(20F630) DUNTKA599WEB5(CU20F630) PWB-B CRT UNIT</b>					C3006	VCEA0A1CW106M+X	10	16V	Electrolytic
					C3007	VCEA0A1HW475M+X	4.7	50V	Electrolytic AA
					C3008	VCKYCY1HF103Z*	X	0.01	50V Ceramic AA
<b>TRANSISTORS</b>					C3009	VCEA0A1CW227M+X	220	16V	Electrolytic AB
Q853	VS2SC3789//2E	X	2SC3789		C3010	VCE9GA1HW475M+X	4.7	50V	Electrolytic AB
Q854	VS2SC3789//2E	X	2SC3789		C3011	VCEA0A1HW475M+X	4.7	50V	Electrolytic AA
Q855	VS2SC3789//2E	X	2SC3789		C3012	VCE9GA1HW475M+X	4.7	50V	Electrolytic AB
Q894	VS2SA1015Y/1E+	X	2SA1015Y		C3013	VCKYCY1HB272K*	X	2700p	50V Ceramic AA
<b>DIODES</b>					C3014	VCQYTA1HM473J+	X	0.047	50V Mylar AA
D859	VHD1SS119//1*	X	1SS119	AA	C3015	VCEACA1HC335K+	X	3.3	50V Electrolytic AB
D898	VHD1SS119//1*	X	1SS119	AA	C3016	VCE9GA1HW475M+X	4.7	50V	Electrolytic AB
<b>COIL</b>					C3017	VCEACA1CC106K+	X	10	16V Electrolytic AB
L851	VP-MK820K0000+	X	Peaking, 82μH		C3018	VCEA0A1HW105M+X	1	50V	Electrolytic AA
<b>CAPACITORS</b>					C3019	VCEA0A1CW106M+X	10	16V	Electrolytic
C851	VCKYPA1HB221K+	X	220p 50V Ceramic		C3020	VCEA0A1CW106M+X	10	16V	Electrolytic
C852	VCKYPA1HB221K+	X	220p 50V Ceramic		C3021	VCEA0A1CW106M+X	10	16V	Electrolytic
C853	VCKYPA1HB221K+	X	220p 50V Ceramic		C3022	VCEA0A1CW106M+X	10	16V	Electrolytic
C880	RC-KZ0153CEZZ	X	1000p 3kV Ceramic		C3023	VCKYCY1HF103Z*	X	0.01	50V Ceramic AA
C893	VCEA0A1CW336M+X	33	16V Electrolytic		C3024	VCKYCY1HF103Z*	X	0.01	50V Ceramic AA
<b>RESISTORS</b>					C3025	VCKYCY1HF473Z*	X	0.047	50V Ceramic
R849	VRD-RA2BE271J*	X	270 1/8W Carbon	AA	C3026	VCKYCY1HF473Z*	X	0.047	50V Ceramic
R850	VRD-RA2BE470J*	X	47 1/8W Carbon	AA	C3030	VCQYTA1HM682J+	X	6800p	50V Mylar AA
R851	VRD-RA2BE470J*	X	47 1/8W Carbon	AA	C3031	VCKYCY1HF682Z*	X	6800p	50V Ceramic
R852	VRD-RA2BE470J*	X	47 1/8W Carbon	AA	C3034	VCEA0A1HW224M+X	0.22	50V	Electrolytic AA
R854	VRD-RA2BE331J*	X	330 1/8W Carbon	AA	C3037	VCEA0A1HW335M+X	3.3	50V	Electrolytic
R855	VRD-RA2BE331J*	X	330 1/8W Carbon	AA	C3038	VCEA0A1HW335M+X	3.3	50V	Electrolytic
					C3039	VCEA0A1HW224M+X	0.22	50V	Electrolytic AA
					C3042	VCKYCY1HB681K*	X	680p	50V Ceramic AA
					C3043	VCKYCY1HB681K*	X	680p	50V Ceramic AA

Ref. No.	Part No.	★	Description	Code	Ref. No.	Part No.	★	Description	Code
C3044	VCEA0A1EW476M+X	47	25V Electrolytic	AA	<b>MISCELLANEOUS PARTS</b>				
C3045	VCEA0A1HW335M+X	3.3	50V Electrolytic		SP301	VSP1205PB09WA	X	Speaker(L)	
C3046	VCEA0A1HW335M+X	3.3	50V Electrolytic		SP302	VSP1205PB09WA	X	Speaker(R)	
C3047	VCEA0A1HW335M+X	3.3	50V Electrolytic			LHLDW1003PEZZ	X	Wire Holder, x2	
C3048	VCEA0A1HW335M+X	3.3	50V Electrolytic			QCNW-A299WJZZ	X	Connecting Cord (K)	
C3080	VCEA0A1CW106M+X	10	16V Electrolytic			QCNW-A530WJN1	X	Connecting Cord (AN)	
C3081	VCEA0A1CW106M+X	10	16V Electrolytic			QCNW-A531WJN1	X	Connecting Cord (FAV)	
C3082	VCKYCY1HF103Z*	X 0.01	50V Ceramic	AA		QCNW-A532WJN1	X	Connecting Cord (RAV)	
C3083	VCEAKA1CW106M+	X 10	16V Electrolytic			QCNW-A534WJN1	X	Connecting Cord (MTS)	
<b>RESISTORS</b>						QCNW-A871WJZZ	X	Connecting Cord	
RJ2	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA		QCNW-A872WJZZ	X	Connecting Cord	
RJ4	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA		QCNW-A873WJZZ	X	Connecting Cord	
R3001	VRS-CY1JF221J*	X 220	1/16W Metal Oxide	AA					
R3002	VRS-CY1JF221J*	X 220	1/16W Metal Oxide	AA					
R3003	VRS-CY1JF105J*	X 1M	1/16W Metal Oxide	AA					
R3004	VRS-CY1JF104J*	X 100k	1/16W Metal Oxide	AA					
R3005	VRS-CY1JF623J*	X 62k	1/16W Metal Oxide	AA					
R3007	VRS-CY1JF332J*	X 3.3k	1/16W Metal Oxide	AA					
R3008	VRS-CY1JF302J*	X 3k	1/16W Metal Oxide	AA					
R3010	VRS-CY1JF392J*	X 3.9k	1/16W Metal Oxide	AA					
R3011	VRS-CY1JF102J*	X 1k	1/16W Metal Oxide	AA					
R3012	VRS-CY1JF102J*	X 1k	1/16W Metal Oxide	AA					
R3013	VRS-CY1JF102J*	X 1k	1/16W Metal Oxide	AA					
R3014	VRS-CY1JF102J*	X 1k	1/16W Metal Oxide	AA					
R3016	VRS-CY1JF102J*	X 1k	1/16W Metal Oxide	AA					
R3018	VRS-CY1JF102J*	X 1k	1/16W Metal Oxide	AA					
R3019	VRS-CY1JF102J*	X 1k	1/16W Metal Oxide	AA					
R3021	VRS-CY1JF102J*	X 1k	1/16W Metal Oxide	AA					
R3024	VRS-CY1JF000J*	X 0	1/16W Metal Oxide	AA					
R3025	VRS-CY1JF272J*	X 2.7k	1/16W Metal Oxide	AA					
R3026	VRS-CY1JF331J*	X 330	1/16W Metal Oxide	AA					
R3027	VRS-CY1JF392J*	X 3.9k	1/16W Metal Oxide	AA					
R3028	VRS-CY1JF683J*	X 68k	1/16W Metal Oxide	AA					
R3029	VRS-CY1JF392J*	X 3.9k	1/16W Metal Oxide	AA					
R3030	VRS-CY1JF683J*	X 68k	1/16W Metal Oxide	AA					
R3031	VRS-CY1JF182J*	X 1.8k	1/16W Metal Oxide	AA					
R3032	VRS-CY1JF223J*	X 22k	1/16W Metal Oxide	AA					
R3033	VRS-CY1JF102J*	X 1k	1/16W Metal Oxide	AA					
R3034	VRS-CY1JF182J*	X 1.8k	1/16W Metal Oxide	AA					
R3035	VRS-CY1JF223J*	X 22k	1/16W Metal Oxide	AA					
R3036	VRS-CY1JF102J*	X 1k	1/16W Metal Oxide	AA					
R3080	VRS-CY1JF101J*	X 100	1/16W Metal Oxide	AA					
R3081	VRS-CY1JF101J*	X 100	1/16W Metal Oxide	AA					
R3082	VRS-CY1JF103J*	X 10k	1/16W Metal Oxide	AA					
R3083	VRS-CY1JF103J*	X 10k	1/16W Metal Oxide	AA					
R3084	VRS-CY1JF103J*	X 10k	1/16W Metal Oxide	AA					
R3085	VRS-CY1JF103J*	X 10k	1/16W Metal Oxide	AA					
<b>MISCELLANEOUS PARTS</b>									
P3001	QPLGZ0810CEZZ	X	Plug, 8Pin	AB					
P3002	QPLGN0441CEZZ	X	Plug, 4Pin(RAV)	AA					
P3003	QPLGN0441CEZZ	X	Plug, 4Pin(FAV)	AA					
P3004	QPLGN0361CEZZ	X	Plug, 3Pin(WF)						
P3008	QPLGZ0810CEZZ	X	Plug, 8Pin	AB					
P3009	QPLGZ0610CEZZ	X	Plug, 6Pin	AB					
P3012	QPLGN0241CEZZ	X	Plug, 2Pin(AV)	AA					
P3013	QPLGN0241CEZZ	X	Plug, 2Pin(AN)	AA					

Ref. No.	Part No.	★	Description	Code
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### SUPPLIED ACCESSORIES

#### ACCESSORIES

RRMCGA108WJSA	X	Infrared R/C Unit	AB
TGAN-0001GJZZ	X	Guarantee Card (20F630)	
TiNS-A725WJZZ	X	Operation Manual (20F630)	
TiNS-A747WJZZ	X	Operation Manual (CU20F630)	

#### ACCESSORIES (NOT REPLACEMENT ITEM)

TCAUH3045GJZZ	-	Caution Card	—
TCAUS3001GJZZ	-	Caution Card (CU20F630)	—
TCAUS3002GJZZ	-	Caution Card (CU20F630)	—

### PACKING PARTS NOT REPLACEMENT ITEM)

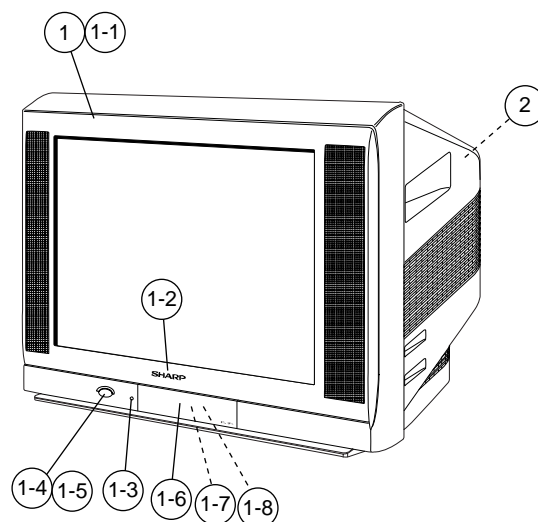
SPAKCA696WJZZ	-	Packing Case	—
SPAKPA055WJZZ	-	Wrapping Paper	—
SPAKXA145WJZZ	-	Buffer Material	—
SSAKA0101GJZZ	-	Polyethylene Bag	—

Ref. No.	Part No.	★	Description	Code
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### CABINET PARTS

1	CCABAA323WEH0	X	Front Cabinet Ass'y	
1-1	Not Available	-	Front Cabinet	—
1-2	HBDBG3155CESA	X	SHARP Badge	
1-3	HDECQA119WJSA	X	LED/RC Cover	
1-4	JBTN-A070WJKA	X	Power Button	
1-5	MSPRC0005PEFW	X	Power Button Spring	
1-6	GDORFA015WJKA	X	Door	
1-7	MSPRPA012WJFW	X	Door Spring	AB
1-8	HiNDPA194WJSA	X	Indication Plate	
2	GCABBA088WJKA	X	Rear Cabinet	

### CABINET PARTS LOCATION



## PACKING OF THE SET

\*Polystyrene Bag  
6 SSAKA0101GJZZ

Operation Manual  
Batteries  
Remote Control  
Register card (20F630)

\* Polystyrene Mat  
5 SPAKPA055WJZZ

\*Buffer Material  
4 SPAKXA145WJZZ

\* Packing Case  
3 SPAKCA696WJZZ

USE TAPE TO FIX TOP  
SIDE OF PACK CASE

UPC LABEL  
BAR CODE LABEL

USE 12 STAPLES  
FIX THE PACKING CASE

MARK \*: Non replacement items



# SHARP

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TQ -S  
May 2003 Printed in Japan  
In Japan gedruckt

Design and Production Information	
Design	:
Production	:

MY. DS

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Yaita, Tochigi 329-2193, Japan